HUNTER VALLEY 99'ERS NEWS

TI 99/4A

HOME COMPUTER NEWSLETTER

DECEMBER 1987

TEXAS INSTRUMENTS
Newcastle
& The Hunter Region
Home Computer
USERS' GROUP

SEASONS GREETINGS TO ALL

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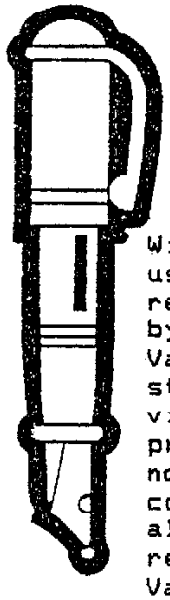


with Paul Mulvaney

With Christmas upon us it is time to reflect on times gone by. The Hunter Valley Users Group is still a strong, viable group providing support to not only local computer users but also to users quite remote from the Valley.

The last six months has seen some innovative ideas tried out which have proved to be quite popular. In particular the newsletter and software chains allow all to share the resources of the group. The special interest afternoons and social events have also been popular among those that have attended, thanks to everyone who has helped make them a success.

One person I will single out for individual mention and praise is Brian Woods our Editor. Brian does a tremendous job compiling this top class newsletter. Please assist by submitting an article, especially for the February edition.

Our group goes into semi retirement as the temperature rises into the 30 - 40 degrees celsius, the pool, the beach or a cold beer in the shade of a gum tree is more inviting than a hot computer for the next eight weeks. If things seem a bit quiet dont worry it is just heat induced apathy.

I would like to wish everyone in the TI community a merry but safe Christmas and I look forward to being involved with you all in the new year.

PS. Dear SANTA, If you happen to read this maybe you could look in your bag of goodies and see if there is a spare RAMdisk which might fit into my PE box.

SECRETARYS REPORT

Because this is the last issue of the newsletter for 1987 and because I had occasion to rave on last month I shall try and keep this column rather short.

Firstly MERRY CHRISTMAS AND HAPPY NEW YEAR FOR 1987/88 from all of us here at HV99 in Australia and secondly on behalf of the committee of HV99, I would like to thank each and every member of this marvellous group for their dedication and HELP during 1987. Along with this goes a huge thank you to our treasured exchange user groups around Australia and the world, for without this cohesion the plight of the 4A would surely be somewhat desperate by now.

Through 'our',(meaning all of us) efforts the 4A machine remains to be a rather difficult to explain curiosity throughout the micro-computing world and I sincerely hope and believe that it will remain so for the future. I say this, not on engineering or economical grounds although both are very strong, but on what I see as an extremely strong USER BASE which the other so called bigger and better machines (spit, spit!!!) seemingly are not able to attract. Anyway, I know when I'm on a good thing and I'm gunna stick with it!!!

Well that's about it for 1987 from Albert and I know that '88 is going to be just as fulfilling as the year just gone, so until February next....thanks a lot and see ya!!!

Albert Anderson
4a4me

IN THE NEWS

A POT POURRI OF LOCAL AND INTERNATIONAL NEWS

COMPILED BY

joe wright

Once again Christmas is with us and the News from around the TI World just keeps coming.

FUNNELWEB Vers. 4.Ø

I read recently in a Newsletter where Tony has been criticized for releasing updates for Funnelweb to quickly. Having now obtained my copy of version 4.Ø and writing this article with it, I comment "Thank goodness for updates".

Somebody more "into" word processing than I will have to review this new version. However a a pure HACKER when it comes to writing and using Funnelweb, I feel obliged to comment that the new version is a dream. Prior to getting Vers 4.Ø I had always used the Editor in the E/A package for my assembly work. NOT ANYMORE friends. The VIEW feature is of the utmost use to me, then add the nicety of shifting a line down after a LABEL, mmmH, MAGIC. Thanks Tony. If you have not got your copy yet then contact the Club Librarian pronto. (Poor old Word Star can completely step aside."Nutha" machine of course.)

32k MODULE.

Had hoped to have the 32k QED modules up and running for the December meeting. At the time of writing some of the components had not arrived.

TECHNICAL DATA. Tony McGOVERN received masses of technical information from the US this month. Some of it is stuff that was in the pipe line but never managed to see the light of day. It will be included in the next great mail out. I have scheduled the next mail out for March 1988, at this stage it look like being a beauty. It will be of reasonable size but definitely heavy with information. For our local members, see me at any General Meeting for a look see! May even consider private viewing it the crocodile tears are big enough.

Overseas News.

How it arrived I'm not to sure, a pamphlet from Canada advertising MAXIMEM has appeared. I have not read anything about this module in the Newsletters which I have had access to. The following are snippets from that pamphlet.

MAXIMEM; A Universal cartridge for the TI 99/4A.
MAXIMEM is a powerful static RAM cartridge with 56k of RAM and 16k of ROM.
MAXIMEM gives you the ability to transfer any programme module to disc. More than one programme module can be loaded into MAXIMEM at a time, depending on it's location in memory.
MAXIMEM has a pushbutton RESET and BATTERY BACK-UP.
MAXIMEM starts automatically, thanks to a 16k GROM that takes over the operating system when you turn on the computer. It displays the following options;

1 TI BASIC
2 MAXIMEM
3 EDITOR/ASSEMBLER
4 MAXIMEM CS1 (cassette control)

MAXIMEM's dimensions: similar to Cartridge expander (Widgit) or an equivalent 3 module-expander.

MATERIAL REQUIRED
A) TI 99/4A CONSOLE
B) EITHER;
1) 1 Disc drive, control card, 32k expansion
or
2) Cassette data recorder

COST:- $200.00 CANADIAN add $8/12 for transport,postage and insurance.
Money order only.
Allow one month for delivery.

DIRECT inquiries to;

Guy Gourney
146 178 Can Inc.
933 Delorimier
LONGUEUIL, Qc
CANADA
J4k 3M8

FROM BUG NEWS of BREA 99'ers User Group. Ken Hamai writes:

Some other new DATABIOTICS products include a couple of 64k cartridges, yep you heard right, 64k! One contains a desktop publishing type programme which is being developed by the wizard who wrote TI Artist, Chris Faherty. With this giant memory cartridge, you're supposed to be able to use only a console and 'Any standard Centronics parallel printer and interface' to do desktop publishing. That's a pretty bold statement, but that's what the ad says. Look for the DESKTOP PUBLISHER soon.

The other 64k cartridge is also still being worked on but is supposed to come out this month sometime, is the TI WORKSHOP. It looks to be an intergrated assembly language programming aid tool. Hope you can make sense out of the last sentence. The ad says it can do a potful of stuff that would take several different programmes that we currently have to give you all the same features. This one is supposed to be completely menu driven.

What else, Oh yeah, 'Can anybody type 100 words per minute?' There's a cartridge called PRO TYPER that was made to replace the no longer in production TI TOUCH TYPING TUTOR.

From the FORREST LANE USERS GROUP DALLAS Texas. Richard Fleetwood writes in the August Newsletter.

Switching to software, one of the most powerful programmes to come along for the TI 99 yet is the graphics package called THE PRINTER'S APPRENTICE. It allows Character Editing, Picture Editing, Formatting of text, and scheduling all parts of a page tp produce a full page, one pass through the printer, output. You can produce ALL sorts of newsletters, advertisements, announcements, and more through this package, and the finished product is something that is USEFUL. There are very few programmes on the market today that actually make something useful. TPA is written in FORTH and is powerful and fast. It is written for use exclusively with Epson and Gemini printers, and is unprotected. The TPA programme comes with six different fonts for different uses. TPA FONTS DISK ONE adds 10 more new and exciting fonts. Mike McCann has also JUST released a new set of programmes called TPA TOOLBOX, with a series of programmes that allow PAGE MANAGEMENT, a SIGN TOOL, FONT CONVERSIONS of TI ARTIST and CSGD fonts to the TPA font style, A BORDER BUILDER that provides over 20 different types of borders for use in you printout, a FORMS tool for making mass numbers of boxes much like columner pad, or for making score cards or accounting worksheets. The disk also contains two new fonts for use with the TPA package. Altogether, these programmes make for a TRUE Print Shop type system for us poor orphaned computer owners.
On the Public Domain front, travis Watford has released his new terminal emulator programme OMEGA. This programme, besides being a good terminal programme, also features programmable keys, xmodem transfers, ASCII downloads, and (here's the kick) ONLINE viewing of RLE TYPE pictures. I am working on adding this feature to the FLUG TIBBS, and should have it online shortly. Travis called the TIBBS tonight, and I chatted with him for a little while, and then went voice. He says that OMEGA is far from finished, and has much more to come, probably by this fall. The version he has in release now was to sooth those people who wanted to view RLE pictures online. He said they have been BEGGING him for months to release it, and he got it to a usable point. A few things that will be added in the near future are ASCII UPLOADS (some of the code is already there, but not usable as is), and another method of viewing graphics. He'll have more information available later. He is

also going to be forwarding me some information that will let owners of FOUNDATION 128k cards to upgrade to 512k cheaply. Stay tuned....

Now from the SEPTEMBER FLUG Newsletter, Richard Fleetwood again.

We also had two great demos. The first one was by our suprise visitor, PAUL URBANUS. Paul is one of the legendary programmers from LUBBOCK. Among his credits are PARSEC, MUNCHMAN, and many other cartridges games. Other programmes he has written that are just hitting the market are BARRAGE, JUMPY, and SPOTSHOT. These are being marketed by DATABIOTICS, and I highly recommend ALL of them. These are GREAT action games, with action you rarely see in lots of games today. Contact me for more info on these. Anyway, Paul brought out a brand new device he has been working on for the past few months. You may or may not have seen this thing advertised yet by the people backing this item. The thing is a brand new 512k RAM disk, available in a kit or already built. The name of it is GRAND RAM. I have seen it advertised already in full page adds in MICROPENDIUM, by a company called INNOVATIVE PROGRAMMING. Paul built the hardware under contract for them, and someone else is doing the software for it. The cards provides ramdisk, print spooler, and clock functions, as well as letting you use John Johnston's MENU programme for the HORIZON RAMDISK. It also is going to support two extras ports to allow A) GRAM simulation, and B) Hardware adapters for piggy back boards, like 4 channel music boards and other things. The demo was short, but interesting, and Paul said he would give us a better one after he gets some of the etched boards back. The board he had was a prototype wire wrapped board. Thanks Paul!

In an earlier column I mentioned that a new version of MASS TRANSFER had been released. Here is a bit more about it from the MSP 99 June Newsletter, article by Tim Fairbairn.

For those of you into using Bulletin Boards and other communications media with your computer (I am), will be interested to know that there is now a new version of the excellent terminal programme MASS TRANSFER out and available via St. Boni TECHIE BBS. Now under new name and with better software for the BBS, Ralph Johnson (sysop) has now built up a first class operation.

The new version of MASS TRANSFER includes XMODEM and YMODEM protocols, along with both single and multiple file transfer in both protocols. It maintains a received data buffer that can be logged automatically to printer or disk, and may also be reviewed and any specific portion printed in screen-sized chunks on key command.

It also permits autodialing from any of 8 files of 16 phone numbers if your modem has the autodial capability, and will do redialing and auto hangup operations. It works at all baud rates up to 2400 and is very easy to use; those who have worked at all extensively with FASTERM and then tried this one generally like the MASS TRANSFER programme better because of it's ease of use. I have been using the older version of the programme for over two years now and am in the process of getting the update, If you do use this programme, be sure the FAIRWARE author gets a contribution so he will be encouraged to continue his excellent support of the TI systems.

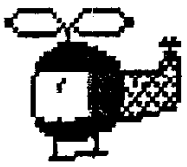
That about wraps it up for another month, except to wish all those who take the time to read this article (and those who don't) a VERY MERRY CHRISTMAS and for NEW YEAR I wish you all that I would wish my family and myself.

'Twas the night before Christmas,
when all through the house
Not a creature was stirring-
not even a mouse;
The stockings were hung by
the chimney with care,
In hopes that St. Nicholas
soon will be there.

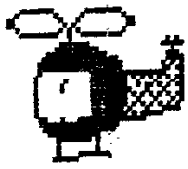
Clement C. Moore.

Best Wishes
Joe Wright

P.S. Our southern agent S.T. is no wearing us out with a flood of letters, probably all that waiting around to the coffee to be ready??



HELICOPTER



TRANSLATED TO MINI- MEMORY

by

KEVIN COX

```
VM  EQU >6028                       *VM=VMBW
VW  EQU >6034                       *VM=VWTR
KS  EQU >6020                       *KS=KSCAN
HE  DATA >007F,>0000,>0107,>0E0E    *HELICOPTER PATTERN DESCRIPTOR
    DATA >1EBE,>FFBF,>0F07,>020F    *BLOCK 2
    DATA >00FF,>8080,>C0F8,>04C2    *      3
    DATA >DACA,>FEFC,>F8E0,>40F8    *      4
SD  DATA >7080,>8008                *INITIAL SPRITE DATA
    DATA >D000                      *DO PREVENTS GHOST SPRITES
SP  DATA >0A0F,>0000                *SPRITE SPEED FOR AUTO MOTION
ST  EQU >837C                       *GPL STATUS BYTE
VD  DATA >01E0                      *INITIAL VALUE OF VDP REGISTER 1
MY  EQU >8300                       *MYREG IS 16 BIT HIGH SPEED AREA OF MEMORY
SR  LWPI MY
    CLR @>8375                      *KEYBOARD DEVICE=0. SCAN ALL
    MOV @VD,R6
    LI R0,>0400                     *BASE ADDRESS OF SPRITE DESCRIPTOR TABLE
    LI R1,HE                        *     SPRITE
    LI R2,32                        *             DESCRIPTOR
    BLWP @VM                        *                        TABLE
    LI R0,>0300                     *BASE ADDRESS OF SPRITE ATTRIBUTE TABLE
    LI R1,SD                        *     SPRITE
    LI R2,6                         *             ATTRIBUTE
    BLWP @VM                        *                       TABLE
    LI R0,>0780                     *BASE ADDRESS OF SPRITE MOTION TABLE
    LI R1,SP                        *     SPRITE
    LI R2,4                         *             MOTION
    BLWP @VM                        *                    TABLE
    LI R1,>0100
    MOVB R1,@>837A                  *1 SPRITE IN MOTION
LO  CLR @ST
    BLWP @KS
    MOVB @ST,ST                     *HAS KEY BEEN PRESSED?
    LIMI 2                          *ENABLE INTERRUPT FOR AUTO MOTION
    LIMI 0                          *DISABLE INTERRUPTS
    JEQ LO
CH  INC R6                          *R6 IS USED AS A COUNTER TO KEEP
    CI R6,>01E4                     *TRACK OF WHICH MAGNIFICATION
    JLT GO                          *LEVEL (1 TO 4) WE ARE ON
    MOV @VD,R6
GO  MOV R6,R0                       *LOAD R6 WITH DATA
    BLWP @VW                        *CHANGE THE VDP REGISTER
    B @LO
    END                             *CHECK FOR UNRESOLVED REF
    AORG >701C
    DATA >7FB2
    DATA >7FE0
    AORG >7FE0
    TEXT 'HELICO'                   *PROGRAM NAME
    DATA SR                         *START OF PROGRAM
    END

* THIS PROGRAM PLACES A HELICOPTER SPRITE IN MOTION
* BY ENABLING INTERRUPTS.

* PRESS ANY KEY TO ALTER MAGNIFICATION
```

RANDOM BYTES

with

BOB CARMANY

I'm going to try to get back to a variety of material for this month's column. There is quite a lot that still has to be done in the realm of TI programming.

Here are some more CALL LOADs that you can use with your 32K. There were some others in my May column.

CALL LOAD(-39162,99,114) Automatic RUN "DSK1.LOAD" and the restart of Extended BASIC.

CALL LOAD(-31873,x) Start printing at column x (x=3 to 30)

CALL LOAD(-31877,x) 32= Sprite coincidence, 64= 5 sprites on a row.

CALL LOAD(-31878,x) Turn off Sprites (x=# of sprite, if x=0 then turn off all sprites).

CALL LOAD(-31880,x) Random number generator (x=0 to 99). Also requires RANDOMIZE.

CALL LOAD(-31962,160,04) Executes RUN without pre-scan.

Now, let' go on to something else that is a little different. This next short program will generate some unusual sound effects. It came from the Toronto (Canada) UG.

```
100 REM *** WIERD SOUNDS ***

110 REM BY DAVID HUGGETT

120 REM

130 REM 9T9ER USERS GROUP, TORONTO

140 REM The word INSTRUCTIONS in
    line 160 maybe changed to any
    word in the resident vocabulary
    for different effects

150 FOR Y=1 TO 88 :: IF Y=4 THEN
    Y=7

160 CALL SPGET("INSTRUCTIONS",D$)

170 D=LEN(D$) :: PRINT Y

180 D$=SEG$(D$,1,2)&CHR$(D)&SEG$(D$
    ,Y,D)

190 FOR X=1 TO 6 :: CALL SAY(,D$)
    :: NEXT X :: NEXT Y
```

Here is another short program that might be of some use. If you are like most of us, you have a bit of trouble trying to remember which color corresponds with which number. Well this one will show you.

```
100 CALL CLEAR

110 CALL COLOR(3,16,1)

120 CALL COLOR(4,16,1)

130 FOR COLOR=1 TO 16

140 PRINT COLOR

150 CALL SCREEN(COLOR)

160 FOR DELAY=1 TO 500

170 NEXT DELAY

180 CALL CLEAR

190 NEXT COLOR

200 END
```

Here is atip that might be of some interest to you. This little bit of coding can be used to replace the CALL COINC statement.

```
CALL PEEK(-31877,N) :: IF N AND 32
THEN ...
```

Here is a routine that will produce random sprite motion within the range of -128 to 127.

```
CALL PEEK(-31808,A,B) :: CALL
MOTION(#1,A-128,B-128)
```

For those of you who are into anagrams -- you know, how many words can you make out of . . . Here is a program just for you.

```
100 CALL CLEAR :: PRINT TAB(9);"ANA
    GRAMMER"

105 OPEN #1:"PIO"
```

```
110 INPUT "Type A 3-,4-,5-,6-Letter
    word ":A$ :: W=LEN(A$) :: IF (W
    <3)+(W>6) THEN 110

120 PRINT :: FOR J=1 TO W :: B$(J)=
    SEG$(A$,J,1) :: NEXT J :: FOR J
    = 2 TO W :: IF B$(J)>=B$(J-1)
    THEN 160

130 T$=B$(J) :: FOR L=J-1 TO 1 STEP
    -1 :: B$(L+1)=B$(L)

140 IF B$(L-1)>=T$ THEN 150 :: B$(L
    )=T$ :: GOTO 160

150 NEXT L

160 NEXT J

170 FOR A=1 TO W :: FOR B=1 TO W ::
    IF B=A THEN 340

180 FOR C=1 TO W :: IF (C=A)+(C=B)
    THEN 330

190 IF W=3 THEN 250

200 FOR D=1 TO W :: IF (D=A)+(D=B)+
    (D=C) THEN 320

210 IF W=4 THEN 260

220 FOR E=1 TO W :: IF (E=A)+(E=B)+
    (E=C)+(E=D) THEN 310

230 IF W=5 THEN 270

240 FOR F=1 TO W :: IF (F=A)+(F=B)+
    (F=C)+(F=D)+(F=E) THEN 300 ELSE
    280

250 W$=B$(A)&B$(B)&B$(C) :: IF W$<=
    V$ THEN 330 ELSE 290

260 W$=B$(A)&B$(B)&B$(C)&B$(D) ::
    IF W$<=V$ THEN 320 ELSE 290

270 W$=B$(A)&B$(B)&B$(C)&B$(D)&B$(E
    ) :: IF W$<=V$ THEN 310 ELSE
    290

280 W$=B$(A)&B$(B)&B$(C)&B$(D)&B$(E
    )&B$(F) :: IF W$<=V$ THEN 300

290 PRINT #1:W$&" ";:: G=G+1 :: V$=
    W$ :: ON W-2 GOTO 330,320,310,
    300

300 NEXT F

310 NEXT E

320 NEXT D

330 NEXT C

340 NEXT B

350 NEXT A

360 PRINT #1:" ";G;"Total Combinati
    ons." :: G=0 :: V$=""

370 CLOSE #1

380 DISPLAY AT(12,6)ERASE ALL:"Anot
    her Anagram?" :: ACCEPT AT(13,1
    4)VALIDATE("YN"):CHOICE$

390 IF CHOICE$="Y" THEN 105 ELSE
    400

400 END
```

Well, that about does it for this month. I hope that you have enjoyed the few programs that were in this column and indeed over the past year. To all members, family and friends of the HV99ers, Merry Christmas and a Happy New Year from the States. Till the February issue...

HOW ABOUT TWO

Would you like to use TWO keys at the same time? Eg, if you want to move a target and then fire upon it. Well, this is possible through the use of the split keyboard. When using the CALL KEY and it asks you for the key unit, you have the option of 0-5.) allows you touse all of the keyboard but with only one input. 1 allows you to use the left side of the keyboard or remote control 1. 2 allows you to use the right side of the keyboard and remote control 2. 3,4 or 5 are reserved for future use. When using 1 or 2 it is like having two keyboards tied together.

Thanks Tassie.

THE ROOSTER.

THE HARE IS FASTER THAN THE TORTOISE

by

RASTIS AND A SHY PERSON

Have you read one of the many conflicting articles on speeding up XBASIC? Which ones are true, which methods show the highest speed gain etc etc. To answer this question a TICHUG member (the shy one mentioned above) wrote an assembler routine to allow simplistic speed comparisons to be made. The assembler portion follows;

```
* TIMER FOR XB ROUTINES
*
        DEF  A
A       CLR  @E
        CLR  @F
        CLR  @G
        MOV  @BDATA,@>83C4
        RT
*
BDATA   DATA B
*
B       INC  @G
        C    @G,@H
        JEQ  D
C       RT
*
D       INC  @F
        C    @F,@H
        JNE  C
        INC  @E
        C    @E,@H
        JNE  C
        CLR  @>83C4
        RT
*
        AORG >3000   CALL PEEK ADX=12288
*
E       DATA >0000
F       DATA >0000
G       DATA >0000
H       DATA >0000
*
        END
```

After you enter this routine assemble it WITHOUT using the 'C' (compressed) option. On every interrupt from the TMS9901 this routine will increment a 3 word counter. By using a simple XB routine the count can be read and displayed to allow reasonably accurate timing. Obviously it should not be used with disk accessing as these interfere with the normal interrupts, likewise it can't cope very well with any program using sprites.

The following asssumes that the assembled code is saved by the name 'SPEEDO' on DSK1.

Enter XB and type in

```
CALL INIT :: CALL LOAD("DSK1.SPEEDO")
```

then enter the following code;

```
90  GOTO 100 :: A :: V :: B :: C :: D :: E :: F :: Z
100 CALL LINK("A")
110 FOR V=1 TO 100
120 NEXT V
140 CALL PEEK(12288,A,B,C,D,E,F)
150 Z=256^5*A+256^4*B+256*256*256*C+256*256*D+256*E+F
160 PRINT "TIME= ";Z
```

The code at line 90 is to force the symbol table to be in a particular order. When you run this program you will get a "base" time for your machine. Inserting code between lines 110 and 120 will show differences due to that code and form the basis for your decisions on which way to code a program for speed.

For higher accuracy the FOR/NEXT loop in line 110 should be changed from 100 to 1000. I have used 100 as it is faster to run and if no differences show up in 100 executions then I deem the contenders to be equal. You may well find some more marked differences using 1000.

Just for interest my machine showed a time of 25 to run the code above. This value has been ALREADY subtracted from all values shown below to make your comparisons easier. A few trials were conducted by me to determine requirements for another program I'm in the process of completing and I include them for general interest.

1. What about the Tortoise and the Hare? Try inserting the following line;

```
115 TORTOISE = V     T=26
```

then try

```
115 HARE = V         T=24
```

obviously they were right; shorter names are faster so let's try the fastest possible one where the variable name has only 1 character;

```
115 A = V            T=27
```

which is a lot longer, so much for scientific deductions! What about other 1 character names such as @?

```
115 @ = V            T=23
```

Which proves that the shorter the variable the better unless it's an 'A'! Quite clearly something else is happening here. Notice in line 90 the variable 'A' was the first one named. This means that XB has the most trouble in locating it as it is at the top end of the symbol table yet the search through the table starts at the bottom. By using '@' we made the search time as short as possible which the figures support. In the first two cases of TORTOISE and HARE they were both equally accessible and the shorter name won the day. The lesson from all of this is to ensure that the most frequently used variables are located at the end of the symbol table, if the names can also be shortened then so much the better.

2. The most famous one of all; CALL CLEAR vs DISPLAY ERASE ALL

```
115 CALL CLEAR                          T=93
```

then

```
115 DISPLAY ERASE ALL                   T=262
```

Thus proving that only a snail would be interested in DISPLAY ERASE ALL, its main advantage was the fact that it took less memory space than CALL CLEAR. This result is well reported and is not always a true view of the way XB is actually used. Why would anyone stick a CALL CLEAR in a program for no reason?

Often they are associated with an output to the screen of some kind. With this in mind let's review the problem with some slightly different examples.

Perhaps a little more realistically;

```
115 CALL CLEAR :: PRINT V                  T=379

115 CALL CLEAR :: DISPLAY V                T=392

115 CALL CLEAR :: DISPLAY AT(12,12):V      T=375

115 DISPLAY AT(12,12)ERASE ALL:V           T=361
```

This places a whole new perspective on using ERASE ALL, it can save both bytes and time! It all depends on the context. Don't forget this if you try some of your own comparisons.

At this stage tedium set in and so I'll leave the rest up to you with parting thoughts for speed gains. The best gain in execution time seems to come from the least number of lines as this reduces both the number and time of line number table searches. To reduce lines you can use short variable names which give an advantage in using the variable too! I can hear the wails now, 'not more unstructured code?', the answer is yes, as I don't wish to retire before I can get an XB program up and running. The answer to much of this is to keep two copies of your XB program. One is the real one you wrote, complete with single statement lines with huge varible names etc., and the other a shrunk version for actually running. The shrinkage routines are widely available and really do work. An added bonus is that the shrunk version is almost unmodifiable as the code is so hard to follow that others cannot (easily) steal your favorite XB tricks.

GIVE ME A BREAK ! !

by

The Rooster

You can also take this break in Extended Basic as well as console Basic.

When Function CLEAR is used to stop a programme running a BREAK POINT is created and the computer enters COMMAND mode. When the break point is encountered the comptuer retains in memeory the programme and the values of variables which had been assigned during the programme execution. After a BREAK POINT you may interrogate and change these variable values. This is a particarly useful tool for debugging. Type in this short programme.

```
100 CALL CLEAR
110 B=5
120 FOR A=1 TO 20
140 PRINT "B=";B
150 IF A=10 THEN BREAK
160 NEXT A
```

Run the programme. It will print B=5 ten times then BREAK. The computer is now in command mode and we can look at variable values.

```
ENTER          RESPONSE
PRINT B          >5
B=20
CON
```

The computer continues from the BREAK point with a new value set into "B". Try this several times with different numbers to get the feel. You could even try entering some different values for "A" and see what happens. While this is nice to play with it's real use is in debugging. We can alter values which may be halting a programme so that the remainder of the code can be run and checked. It is also useful for testing code control of upper and lower value limits with out going through the whole programme.

RTTY ON THE 4A

by
G. Wilson
and
D. Crawford

The aim of this project was to enable the reception of Radio Teletype (RTTY) transmissions on the TI 99-4A home computer together with the minimum of external hardware.

Requirements for the system are a standard 4A console and mini memory module along with the appropriate software. Externally we need a radio receiver with good sensitivity and high signal to noise ratio, along with a demodulator capable of decoding F.S.K. (Frequency Shift Keyed) analog signals and converting them to digital signals which are then inverted and applied to pin 4 of the joystick port.

HISTORY

Teletype is an early form of coding based on 5 data bits and was invented in 1874 by a Frenchman, Emile Baudot. This code was in use until 1925 when a New Zealand farmer, Donald Murray rationalised it on the basis of the most frequently used characters of the alphabet having the least number of data bits. This standard is used today by all commercial and amateur stations. The first public telegraph service started in England in 1927 and was known as the G.P.O. Telex Service. A similar service is operated locally by Telecom Australia.

After W.W.2 teletype communications expanded rapidly with manufacturers such as Teletype Corp., I.T.T., Klienschmidt Co., Creed Ltd. and Siemens producing their mechanical teleprinters, many of which are still in use today. The Amateur Radio fraternaty seized upon this surplus equipment and established their own international standards.

THEORY

The Baudot or Murray Code is the 5 bit international teleprinter code and at first appears to have a maximum of 32 combinations for a character set. As there are 26 letters in the alphabet, plus numerals and punctuation, space is a problem. Cunningly the code is shifted by two control characters called LETTERS and FIGURES, achieving a possible 60 combinations. The actual number used is 58, as the NUL character, or all bits zero, is not used.

The Baud is the shortest single unit in a code, and can be expressed as the reciprical of the time of that unit. For example, if the shortest unit is 20 MS., the speed of the signal will be 1 over .02 secs. or 50 Baud. Amateur Radio speeds are 45.3 or 50 Baud with the former being common in Australia and Europe. Commercial RTTY transmissions, wire services etc.often use 75 Baud along with encripted code to secure their privacy. The speed used in this project is 45.5 Baud or approx. 22 MS. and the value for this speed is used in the full and half bit delay routines documented in the software. Other speeds may can be obtained by altering the value loaded into REGISTER 3 and can be accurately monitored at pin 7 of the joystick port with an oscilloscope. The data displayed on the screen is also stored in V.D.P. Ram from >1000 upwards and this may be serially dumped to a printer at a later date via pin 7 of the joystick port. The printer subroutine is written for 300 Baud operation and will need some individual hardware modifications to achieve RS.232 compatability with the printer that is used. The source code for this routine will be released when fully tested.

INSTRUCTIONS

Select the EasyBug option from M/MEM. menu. Using the M.....Mem Modify command ,enter the source code from listing starting at address 71FC and ending at 75FE. After the program has been checked for errors, you can then store it on cassette tape using the S...Save command. This will make reloading the program a lot easier if it is lost due to battery failure in the M/MEM module. The output of the RTTY demodulator is applied to pin 4

of the joystick port through a simple transistor inverter as this point is a normal -INT.3 keyboard line and is active low. There is no chassis ground available at this port and it will have to be obtained elsewhere eg. cassette port pin 3.

To run the program use the E....Execute command from 71FC and then via a switch turn on the data input to pin 4. NOTE: If the data from the demodulator is applied to pin 4 before the RTTY program is running the data will appear as keyboard inputs and the computer will print garbage on the screen. A simple single pole switch at pin 4 that is enabled after the program is running will stop this problem. To escape from the program at any time all you have to do is press the FCTN key and disable the data switch and the program will return you to EasyBug.

Testing the operation of the complete receive system requires a known error free signal. Murphys Law says there will not be any RTTY stations on the air just when you need one. A standard audio cassette recorder can be used to record signals from your receiver headphone socket and this can then be replayed many times, thus making monitoring and setup less tedious. For those of you that have a FM receiver eg a scanner, you will find RTTY transmissions on certain Amateur Repeaters located in the major cities. These Repeaters operate in the 2METRE band and in Sydney the call sign is VK2RTY and the receive frequency is 146.675 MHZ. The demodulator that I used was a simple PLL. type called the ETI.733 and pc boards are still available from RCS RADIO in SYDNEY. Alternately any RTTY demodulator may be pressed into service and this is left to the experimenter's choice.

I have used a cassette recorder to store the WIA. weekly news broadcast on Sunday mornings and then reviewed it when time permitted. This system is quite flexible and is cheap memory.

In conclusion I hope this little project will lead to more experimenting using the 99/4A, as other fields and applications for it's use are limited only by imagination.

```
*****************************************************
DAUDOT TO ASCII CONVERSION FOR RTTY DECODER ON 99/4A
        USING MINI-MEMORY AND JOYSTICK PORT.
*****************************************************

 DATA COMES IN ON PIN 4 OF THE JOYSTICK PORT,IS
CONVERTED TO ASCII IN A LOOK-UP TABLE AND IS DISPLAYED
ON THE SCREEN.AS WELL IT IS STORED IN VDP RAM FROM
>1000 FOR LATER DUMPING TO A PRINTER.

REGISTERS USED:

      R0  CURRENT VDP ADDRESS
      R1  DISPLAYED BYTE IN ASCII
      R2  HIGHEST VDP ADDRESS TO DISPLAY
      R3  TIMER COUNT VALUE
      R4  SCRATCH LOCATION
      R5  BYTE BEING READ AS BAUDOT
      R6  SHIFT COUNT
      R7  LETTER OR FIGURE SHIFT
      R8  HIGHER VDP ADDRESS (NOT VISIBLE)
      R10 TEMPORARY PROGRAM COUNTER STORAGE
      R11 PC LINK
      R12 CRU BASE ADDRESS
      R13 PC
      R14 WORKSPACE POINTER
      R15 STATUS

LOCN  DATA  LABEL   MNEMONIC
*****************************************************
   INITIAL SETUP OF SOME REGISTERS
*****************************************************
71FC  0208          LI R8,>1000     STARTING HIGH VDP
71FE  1000
7200  020C          LI R12,>0006    CRU ADDRESS
7202  0006
7204  C28B          MOV R11,R10     SAVE RETURN LINK
7206  0200          LI R0,>0002     FIRST SCREEN ADDR
7208  0002
720A  0202          LI R2,>0240     MAX SCREEN ADDR
720C  0200
720E  0207          LI R7,0000      "LETTERS" DEFAULT
7210  0000
*****************************************************
   DO START BIT AND WAIT FOR CHARACTER OR CHECK FOR
                  "FCTN"KEY
*****************************************************
7212  0206  START   LI R6,0005      SHIFT COUNT
7214  0005
7216  0205          LI R5,0000      CLEAR CHARACTER
7218  0000
721A  1F00  PIN4    TB 0            TEST PIN 4
721C  1604          JNE DEL1        JUMP IF LOW
721E  1F04          TB 4            TEST "FCTN" KEY
7220  13FC          JEQ PIN4        JUMP IF HIGH
7222  C2CA          MOV R10,R11     RESTORE LINK
7224  045B          B *R11          RETURN TO EASYBUG
*****************************************************
   WAIT ONE AND A HALF-BIT TIMES AND SAMPLE FIVE TIMES
*****************************************************
7226  06A0  DEL1    BL @HDELAY      DO HALF DELAY
7228  7300
722A  06A0  SAMPLE  BL @DELAY       DO DELAY
722C  7380
722E  1F00          TB 0            SAMPLE PIN 4
7230  1602          JNE +2          JUMP IF LOW
```

```
7232  0225          AI R5,>8000     SET MSB TO 1
7234  8000
7236  0606          DEC R6          DEC SHIFT
7238  1302          JEQ +2          JUMP IF R6=0
723A  0915          SRL R5          SHIFT R5 RIGHT 1
723C  10F6          JMP SAMPLE
723E  09B5          SRL R5,>0B      RIGHT JUSTIFY
*****************************************************
   CONVERT BAUDOT TO ASCII,DISPLAY BYTE,ADJUST R0
*****************************************************
7240  C105          MOV R5,R4       SAVE R5
7242  06A0          BL @BASCII      CONVERT TO ASCII
7244  7400
7246  0420          BLWP @VSBW      DISPLAY R1
7248  6024
724A  06A0          BL @RZERO       TREAT R0
724C  7480
724E  06A0          BL @HDELAY
7250  7380
7252  C100          MOV R0,R4       SAVE R0
7254  C008          MOV R8,R0       HIGH VDP RAM
7256  0420          BLWP @VSBW      PUT INTO VDP
7258  6024
725A  C200          MOV R0,R8       SAVE HI VDP ADDR
725C  C004          MOV R4,R0       RESTORE SCREEN,
725E  0588          INC R8          ADDR
7260  0288          CI R8,>3F00     MAX VDP ADDRESS
7262  3F00
7264  130A          JEQ QUIT        EXIT
*****************************************************
   PRINT SPACES TO PREVIOUS PRINT
*****************************************************
7266  C100          MOV R0,R4       SAVE R0
7268  0220          AI R0,>0020
726A  0020
726C  0201          LI R1,>002E     ASCII FULL STOP
726E  002E
7270  0420          BLWP @VSBW      DISP FULL STOP
7272  6024                          ERASE
7274  C004          MOV R4,R0       RESTORE R0
7276  1000          JMP 0           CONTINUE
7278  10CC          JMP START
727A  045B  QUIT    B *R11          RETURN TO E/BUG
/////////////////////////////////////////////////////
   SUBROUTINES
/////////////////////////////////////////////////////
*****************************************************
   DELAY FOR HALF OF A BIT TIME
*****************************************************
7300  020C  HDELAY  LI R12,>0024    CRU FOR OUTPUT
7302  0024
7304  1D00          SBO 0           SET P2 HIGH
7306  1D01          SBO 1           SET P3 HIGH
7308  1D02          SBO 2           SET P4 HIGH
730A  1000          JMP 0           SHORT DELAY
730C  1000          JMP 0
730E  1E02          SBZ 2           RESET P4
7310  1E01          SBZ 1           RESET P3
7312  1E00          SBZ 0           RESET P2
7314  020C          LI R12,6        CRU FOR PIN 4
7316  0006
7318  0203          LI R3,>0490     DELAY FOR 45.5
731A  0490                        BAUD
731C  0603          DEC R3
731E  16FE          JNE -1          11 MS DELAY
7320  045B          B *R11
*****************************************************
   DELAY FOR WHOLE BIT TIME THEN PULSE OUT ON PIN 7
        AT TIME OF SAMPLING
*****************************************************
7380  0203  DELAY   LI R3,>0920     45 BAUD VALUE
7382  0920
7384  0603          DEC R3          22 MS DELAY
7386  16FE          JNE -1
7388  020C          LI R12,>0024    CRU FOR OUTPUT
738A  0024
738C  1D01          SBO 1           SET P3
738E  1D02          SBO 2           SET P4
7390  1000          JMP 0           SHORT DELAY
7392  1000          JMP 0
7394  1E01          SBZ 1           RESET P3
7396  1E02          SBZ 2           RESET P4
7398  020C          LI R12,6        CRU FOR PIN 4
739A  0006
739C  045B          B *R11
*****************************************************
   CONVERT BAUDOT VALUE IN R5 TO ASCII AND PUT IN R1
*****************************************************
7400  0285  BASCII  CI R5,>001B     FIGURE SHIFT?
7402  001B
7404  1604          JNE LETTER
7406  0207          LI R7,0002      OFFSET VAL OF 2
7408  0002
740A  1000          JMP 0
740C  1006          JMP LOOK
740E  0285  LETTER  CI R5,>001F     LETTERS SHIFT
7410  001F
7412  1603          JNE LOOK
7414  0207          LI R7,0000      NO OFFSET IF LTRS
7416  0000
7418  1000          JMP 0
741A  0A25  LOOK    SLA R5,2        SHIFT R5 LEFT TWO
741C  A147          A R7,R5         ADD OFFSET
741E  C065          MOV (R5),R1     VALUE INDEXED R5
7420  7580                          BASE ADDRS TABLE
7422  045B          B *R11
*****************************************************
   INCREASE R0,AND PUT IN A LEFT MARGIN
*****************************************************
7480  C144  RZERO   MOV R4,R5
7482  0285          CI R5,>001B     LETTERS SHIFT?
7484  001B
7486  1304          JEQ +4
7488  0285          CI R5,>001F     FIGURE SHIFT?
748A  001F
748C  1301          JEQ +1
748E  0580          INC R0          INCREASE CURSOR
7490  C100          MOV R0,R4
7492  0244          ANDI R4,>001F   MASK
7494  001F
7496  0284          CI R4,>001F     R0 AT RIGHT MASK
7498  001F
749A  1602          JNE +2          JUMP IF NOT
749C  0220          AI +3           MAKE LEFT MARGIN
749E  0003
74A0  0280          CI R0,>0282     MAX SCREEN ADDRS
74A2  0282
74A4  1602          JNE +2
74A6  0200          LI R0,2         BACK,TOP OF SCREEN
74A8  0002
74AA  045B          B *R11
```

```
**************************************************
              LOOK UP TABLE
**************************************************
7580  2000          SPACE
7582  2000          SPACE
7584  4500          E
7586  3300          3
7588  0A00          L/F
758A  0A00          L/F
758C  4100          A
758E  2D00          -
7590  2000          SPACE
7592  2000          SPACE
7494  5300          S
7596  2100          !
7598  4900          I
759A  3800          8
759C  5500          U
759E  3700          7
75A0  0D00          C/RET.
75A2  0B00          C/RET.
75A4  4400          D
75A6  2A00          *
75A8  5200          R
75AA  3400          4
75AC  4A00          J
75AE  0700          BELL
75B0  4E00          N
75B2  2C00          ,
75B4  4600          F
75B6  2400          $
75B8  4300          C
75BA  3A00          :
75BC  4B00          K
75BE  2800          (
75C0  5400          T
75C2  3500          5
75C4  5A00          Z
75C6  2200          "
75C8  4C00          L
75CA  2900          )
75CC  5700          W
75CE  3200          2
75D0  4800          H
75D2  2300          #
75D4  5900          Y
75D6  3600          6
75D8  5000          P
75DA  3000          0
75DC  5100          Q
75DE  3100          1
75E0  4F00          O
75E2  3900          9
75E4  4200          B
75E6  3F00          ?
75E8  4700          G
75EA  2600          &
75EC  2000          SPACE
75EE  2000          SPACE
75F0  4D00          M
75F2  2E00          .
75F4  5800          X
75F6  2F00          /
75F8  5600          V
75FA  3B00          ;
75FC  2000          SPACE
75FE  2000          SPACE
```

digressions

from
CHAOS MANOR

The Research Directors of CHAOS MANOR have to announce that Industrial Espionage has reached new heights of degradation. Vital secret research work and income has been seriously eroded by this insidious form of spying and the infringement of copyrights (pending) have been violated. The basis of these allegations is as follows.

Earlier this year Chaos Manor researchers discovered and plotted the whereabouts of that infamous phenomenon, THE BLACK HOLE OF NORTHERN NSW. Wishing to carry out studies without any inteference no information of the discovery was announced. All went well until one particular experiment and enterprise was well under way when suspicions were arose that something was very wrong. Here are the events as known up till now.

In the very early period immediately after the discovery of the Black Holes whereabouts, a method of sampling parts of it was developed. Without releasing any perhaps patentable information, suffice to say that very large amounts of magnetic fields were utilised to capture and contain small parts of the BH (as it is now called). This technique was developed using very little power consumption. The containment and control unit looked very much like a flat screen TV but without the screen.

When held in confinement in this manner it is a sight to behold, a grey swirling vortex and the space inside the frame can only be described as... well how do you describe a non entity??

During a series of experiments it was discovered that an object thrown at the vortex would disappear, never to be seen again. Now what made this small observation interesting came from Chaos Manors THINK TANK, the questions asked were:-

1) Were the objects shifted into

another time warp then dropped?
2) Were they just held in a form of limbo never to escape?

These questions were deliberated very carefully until it was decided that if the time warp theory was correct then perhaps some other life form may exist there! Contact would be world headlines so a small version of the BH containment unit was made up then loaded with some BH material. This complete unit was then dumped into the main Chaos Manor vortex, followed by a message.

-: THIRD PLANET FROM SOL-
SPIRAL GALAXY :-

Then a 24 hour watch was set up to see if anything happened. NOTHING!! Perhaps the unit required more power, so VAST amounts of BH material was also dumped into the main vortex, but still nothing!! Research along these lines slowly dwindled until the 24hr watch was abandoned. Then one morning "IT" was in front of the BH machine!

"IT" was a rotten pumpkin with some soggy corn that smelled a lot like SOUR MASH or perhaps even.... CIDER?? along with some other indescribable garbage?? What the hell happened?? After this startling occurrence nothing more happened for quite some time and the incident was gradually forgotten.

Chaos Manor started to tool up to build these units and sell them as GARBAGE DISPOSAL UNITS. A considerable number were eventually sold throughout the country and a few were placed at different parts of the local area for evaluation studies. Other strange and mysterious objects would appear at odd intervals from the units. It seemed as if there was a malfunction and it was thought that one was passing rubbish to the other, so all but one was shut down and then "IT" happened again. "IT" this time was a totally empty CIDER BOTTLE - how could this be???.

After much Boardroom discussion and consultation with the engineers, a message was written on the hopes that MAYBE, just MAYBE, contact with "whatever" could be established. The message went as follows:-

-: IF YOU ARE OF CARBON BASED LIFE FORM AND CAN DECIPHER THIS MESSAGE WOULD YOU PLEASE RESPOND :-

The message was duly despatched to the main Chaos Manor BH disposal unit and thrown in. Not long after something reappeared. It looked like a message and the hieroglyphics shaped up like this:-

-: BOI GOOM TIS A W'NERFULL CONTRAPTION N'ALL THA SENT OI :-

What WAS all this gibberish? While the scientists were studying the code a report from Chaos Manors board of directors was delivered.

-:SALES OF THE BH GARBAGE DISPOSAL UNIT HAS DROPPED TO ZERO:-

As the old saying goes, THE PENNY DROPPED!! That confounded FARMER FROM LITTLE WIDLECOMB HARDY IN SODS COUNTRY was financing a Consortium to copy and manufacture the BH unit and was undercutting our prices up to 50%!! Further, evidence suggests that these units are being distributed from somewhere in Melbourne, by a person or persons unknown, but rest assured the guilty party/parties will be bought to justice.

Now we at Chaos Manor consider this to be industrial espionage and infringement of Copyright and intend to take the matter further.

Signed, FRED NURKS
Director
CHAOS MANOR.

Footnote:- Although it may seem a bit out of character for a large establishment such as Chaos Manor, a form of revenge was taken, another message was despatched which read:-

-:BE AT THE TERMINAL AT 12 NOON 31st NOVEMBER:-

At precisely 12 noon on the nominated day with one mighty heave a WELLINGTON BOOT FULL OF ROTTING COMPOST was hurled into the abyss. That'll teach 'em.

Ron Kleinschafer.

Adventurers' Corner

WITH "THE ADVENTURER"

rodney gainsford

As this is the last article for 1987 and possibly the last Adventure Corner I will be able to write for some time due to Year 11 studies, I would like to devote it solely to MY favourite adventure. It is by that always popular company, considered by many as the Mecca of the Adventuring World - INFOCOM - and it is, I believe one of their most outstanding efforts. It could be none other than THE HITCH HIKERS GUIDE TO THE GALAXY. As you will have noticed by now I have included what I believe is the first published map of the Heart of Gold & have included a Table that is correct as far as I can tell. So let's just get right into the hints!!

* You wake up in the dark in your bedroom. You need light and a tablet to steady your head.

* On the porch you should learn that everything has a use.

* Before leaving the pub have a few for the road.

* Put all the fluff in the thing - there are 4 kinds.

* Be compassionate, buy a sandwich and feed the dog.

* Remember, you have 5 senses and sometimes only 1 or 2 will function.

* A Babel fish is essential. A sachel, a gown, a towel and junk mail all play an important part.

* You need to enjoy the poetry to escape with the plotter.

The ADVENTURER

* you must enter the Drive Chamber and there is something to look at.

* A Bugblatter beast can be confused with a towel on your head.

* Tea substitute is good to use for a start.

* Keep the flowerpot in the thing.

* Steer towards rocks, it's a lot safer.

* Tell Trillian to blast the rifles.

* Tell Prosser to lie in mud

* You are an idiot.

* In the maze take the large black perticle.

* Eat the fruit, it could give you insight.

* Marvin can open the hatch but he needs an item which you have fore-knowledge of.

* Tea and No tea are possible.

* Once the screen door is opened drink tea then enter.

I hope these hints will help people, and want to follow them up with some for "Leather Goddesses of Phobos" in the February issue.

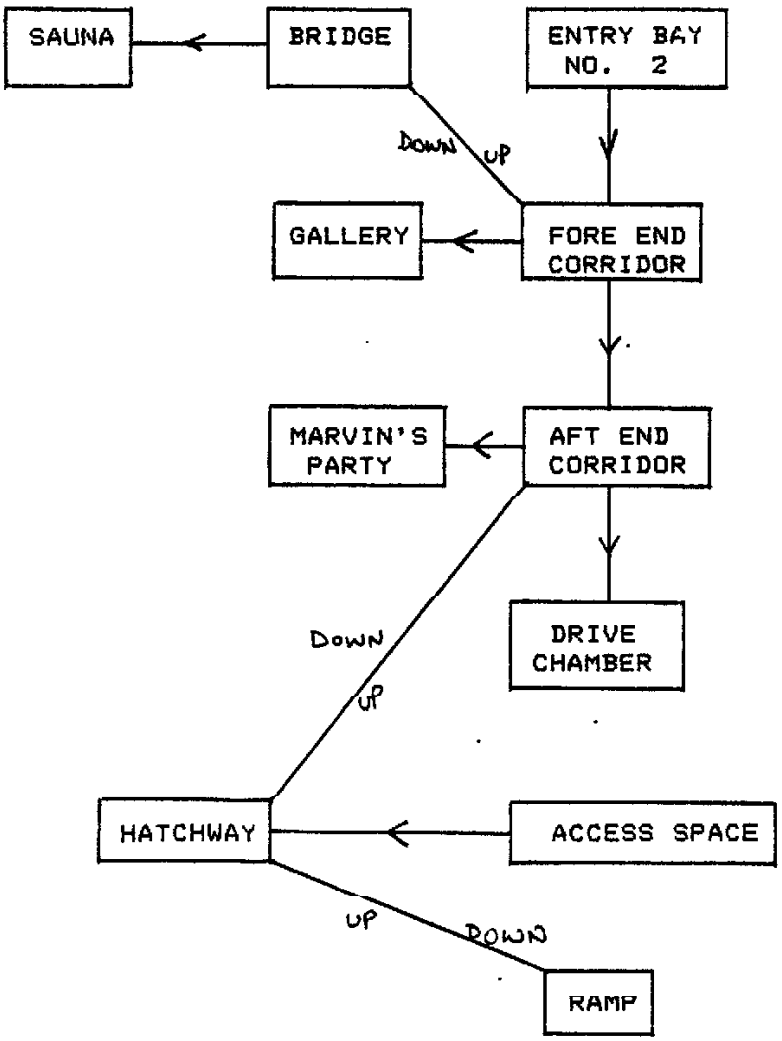
DRIVE TABLE

SENSE	PLACE	PERSON
Sun at front of eyes	Earth	Ford
Sun at back of yes	Damogran	Zaphod
Warm liquid	Whale	Arthur
Cold liquid	Party	Trillian
Star drive far above	Heart of Gold	Arthur
Star drive far below	War Chamber	Arthur

Please address any hints or inquiries to:

The Adventurer,
56 Sedgewick Avenue,
EDGEWORTH NSW 2285
Phone (049) 583515

Heart of Gold



MORE ON GRAPHICS & FUNNELWEB

by

BRIAN RUTHERFORD

The above logo was printed out through FUNNELWEB and the formatter, not a graphics programme. And if you can bear with me I will try to explain how it is done.

To start with we will look at how it could be done with a BASIC or XBASIC programme. The first thing you have to do is open a file to the printer and as you want to print graphics you need to turn the carriage return off. So the statement OPEN #1:"PIO.CR" would do that for us. Note "PIO.CR" turns the automatic linefeed off as well as the carriage return. Next we must set the line spacing so there is no gap between the lines, and to do this on my Amust 80DT printer you send ESCAPE and character 49 signal to it, in the form PRINT #1:CHR$(27)&CHR$(49). The next job is to tell the printer to turn on graphics mode and how many dot columns to print on the line.

PRINT #1:CHR$(27)&CHR$(75)&CHR$(X)&CHR$(Y). CHR$(27)&CHR$(75) turns on the graphics mode and CHR$(X)&CHR$(Y) tells how many dot columns to print, and the values of X and Y are worked out this way. Y=INT(No. dot columns/256) and X=No. dot columns - (256*Y). For example if you had 300 dot columns to print then Y=INT(300/256)=1 and X=300-(256*Y)=44, 600 dot columns X=88 Y=2, 80 dot columns X=80 Y=0. Lastly you send the data to printer to tell it which dots of the eight in the print head to turn on for each dot column across the paper. A programme to do this would look a little like this

```
100 ! FIRST LINE
110 DATA 0,0,0,0,0,0,0,0,0,0
,0,0,0,0,0,0,0,0,0,0,1,2,2,4
,8,8,4,4,4,4,4,4
120 DATA 4,4,4,2,1,0,0,0,0,0
,0,0,0,0,0,0,0,0,0,0,0,0,0,0
,0,3,12,112,224
130 DATA 28,3,0,0,0,0,0,0,0,
0,0,0,0,0,0,0,0
140 ! SECOND LINE
150 DATA 0,0,0,0,0,0,0,0,0,0
,0,1,1,2,4,8,16,32,64,128,0,
0,0,0,0,0,0,0,0
160 DATA 0,0,0,0,0,0,0,0,0,192
,48,12,2,1,1,1,1,0,0,0,0,0,0
,0,0,0,3,12,112
170 DATA 128,0,0,0,0,128,96,
28,3,0,0,0,0,0,0,0,0,0,0,0,0
180 ! THIRD LINE
190 DATA 31,31,3,3,31,31,0,1
1,16,32,195,5,11,9,10,9,8,31
,8,9,10,10,10,9
200 DATA 8,11,1,2,25,28,30,0
,31,31,31,31,28,28,28,31,31,
31,31,0,31,159,159
210 DATA 159,156,156,92,95,2
23,31,31,0,0,0,0,0,0,0,0,0,0
,0,192,32,16,12,2,1
220 DATA 0,0,0,0,0,0
230 ! FOURTH LINE
240 DATA 239,239,0,0,239,239
,0,193,33,33,192,0,231,0,0,2
31,0,224,0,193
250 DATA 161,161,160,0,1,224
,0,0,1,0,0,0,240,240,240,240
,113,115,119,255
260 DATA 254,252,248,0,240,2
40,240,240,113,115,119,255,2
54,252,248,0,127
270 DATA 127,109,97,97,0,127
,127,108,110,127,56,0,57,125
,109,109,111,103
280 DATA 0,0
290 ! FIFTH LINE
300 DATA 0,192,246,241,196,4
,228,20,20,244,20,4,228,20,4
,228,20,4,228,84
310 DATA 84,84,132,4,8,144,9
6,64,128,60,2,2,60,0,18,170,
170,164,128,62
320 DATA 42,34,0,62,40,44,18
,128,128,156,162,42,44,0,62,
40,172,146,128
330 DATA 156,162,34,156,128,
60,2,130,188,0,190,168,168,1
44,128,0,131,124
340 ! SIXTH LINE
350 DATA 0,0,0,128,96,16,8,4
,2,1,0,0,0,0,0,0,0,0,0,0,0,0
,0,0,0,0,0,0,0,1,1
360 DATA 1,1,1,1,1,1,124,32,
16,124,0,124,84,68,0,120,4,2
8,4,120,0,56,68
370 DATA 68,8,0,60,80,80,60,
0,32,84,72,0,64,124,64,0,124
,4,5,0,124,84,68,0
```

```
380 ! SEVENTH LINE
390 DATA 0,0,0,0,0,0,0,0,0,0,1
28,96,16,8,4,2,1,1,2,4,8,16,
16,32,32,64,64
400 DATA 128,128,0,0,0,0,0,0,0
,0,0,128,128,128,128,128,64,
64,64,32,32,32
410 DATA 32,16,16,16,8,8,4,4
,2,2,1,1,2,2,1,2,2,4,4,8,16,
32,64,128
420 DATA 0,0,0,0,0,0
430 ! EIGHTH LINE
440 DATA 0,0,0,0,0,0,0,0,0,0,0
,0,0,0,0,0,0,0,0,0,0,0,0,0,0
,0,0,0,0,0,0
450 DATA 0,0,0,0,0,0,0,0,0,0,0
,0,0,0,0,0,0,0,0,0,0,0,0,0,0
,0,0,0,0,0
460 DATA 112,76,66,65,130,15
6,224,0,0,0,0,0,0,0,0,0,0,0,0
470 ! MAKE EACH PRINT LINE O
NE LONG VARIABLE CHARACTER.
480 FOR I=1 TO 8 :: A$(I)=CH
R$(27)&CHR$(75)&CHR$(77)&CHR
$(0):: FOR J=1 TO 77 :: READ
B :: A$(I)=A$(I)&CHR$(B)::
NEXT J
490 ! ADD A LINE FEED AND CA
RRIAGE RETURN TO END OF LINE
500 A$(I)=A$(I)&CHR$(10)&CHR
$(13):: NEXT I
510 OPEN #1:"PIO.CR" :: PRIN
T #1:CHR$(27)&CHR$(49)
520 FOR I=1 TO 8 :: PRINT #1
:A$(I):: NEXT I :: CLOSE #1
```

Now to change this into something that the FUNNELWEB and the formatter can understand we will have to use the transliteration function. Which would make the whole thing look like this.

```
.TL   0:27,49   (   turns   on   7/72"
linefeed )
```

Type in ctrl U and shift 2 to get CHR$(0)

These next three lines make up the first print line, notice the CHR$(10) and CHR$(13), linefeed and carriage return at the end of the last line. Also as a transliteration code can only be 80 characters long it takes more than one line to get all the necessary codes. Note also each line shows the number of dot columns for that line.

```
.TL 1:27,75,32,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0,0,0,0,0,0,0,1,2,2,4,8,8,4
,4,4,4,4,4
.TL 2:27,75,29,0,4,4,4,2,1,0,0,0,0,
0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,3,
12,112,224
.TL 3:27,75,14,0,28,3,0,0,0,0,0,0,0,0
,0,0,0,0,0,0,0,0,10,13
```

Type in ctrl U and ABC to get characters 1,2 and 3.

Transliterations needed to print second line of print

```
.TL 1:27,75,29,0,0,0,0,0,0,0,0,0,0,0,
0,0,1,1,2,4,8,16,32,64,128,0,0,0,0,
0,0,0,0,0,0
.TL 2:27,75,28,0,0,0,0,0,0,0,0,0,0,
192,48,12,2,1,1,1,1,0,0,0,0,0,0,0,0
,0,3,12,112
.TL 3:27,75,20,0,128,0,0,0,0,128,96
,28,3,0,0,0,0,0,0,0,0,0,0,0,0,10,13
```

Type in ctrl U and ABC

Transliterations needed for third line

```
.TL 1:27,75,24,0,31,31,3,3,31,31,0,
11,16,32,195,5,11,9,10,9,8,31,8,9,
10,10,10,9
.TL 2:27,75,22,0,8,11,1,2,25,28,30,
0,31,31,31,31,28,28,28,31,31,31,31
,0,31,159
.TL 3:27,75,23,0,159,159,156,156,92
,95,95,223,31,0,0,0,0,0,0,0,0,0,0,0
,192,32,16
.TL 4:27,75,8,0,12,2,1,0,0,0,0,0,0,10
,13
```

Type in ctrl U and ABCD

Transliterations needed for fourth line, also the last one is only for line feed and carriage return, as the seventy seven dot column codes take up exactly four lines.

```
.TL 1:27,75,20,0,239,239,0,0,239,
239,0,193,33,33,192,0,231,0,0,231,0
,224,0,193
.TL 2:27,75,20,0,161,161,160,0,1,
224,0,0,1,0,0,0,240,240,240,240,113
2,115,119,255
.TL 3:27,75,17,0,254,252,248,0,240,
240,240,240,113,115,119,255,254,252
,248,0,127
.TL 4:27,75,18,0,127,109,97,97,0,
127,127,108,110,127,56,0,57,125,109
,109,111,103
.TL 5:10,13
```

Type in ctrl U and ABCDE

Transliterations needed for the fifth line.

```
.TL 1:27,75,20,0,0,192,246,241,196,
4,228,20,20,244,20,4,228,20,4,228,
20,4,228,84
.TL 2:27,75,20,0,84,84,132,4,8,144,
96,64,128,60,2,2,60,0,18,170,170,
164,128,62
.TL 3:27,75,19,0,42,34,0,62,40,44,
18,128,128,156,162,42,44,0,62,40,
```

172,146,128
.TL 4:27,75,18,Ø,156,162,34,156,128
,6Ø,2,13Ø,188,Ø,19Ø,168,168,144,128
,Ø,131,124
Type in ctrl U and ABCDE we transliterated character five in the previous set, did not need to change it.

Transliterations needed for sixth line.

.TL 1:27,75,3Ø,Ø,Ø,Ø,Ø,128,96,16,8,
4,2,1,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø
,Ø,Ø,Ø,1,1
.TL 2:27,75,23,Ø,1,1,1,1,1,1,124,32
,16,124,Ø,124,84,68,Ø,12Ø,4,28,4,12
Ø,Ø,56,68
.TL 3:27,75,23,Ø,68,8,Ø,6Ø,8Ø,8Ø,6Ø
,Ø,52,84,72,Ø,64,124,64,Ø,124,4,5,Ø
,124,84,68
Type in ctrl U and ABCE

Transliterations needed for seventh line.

.TL 1:27,75,26,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,
128,96,16,8,4,2,1,1,2,4,8,16,16,32,
32,64,64
.TL 2:27,75,21,Ø,128,128,Ø,Ø,Ø,Ø,Ø,
Ø,Ø,Ø,128,128,128,128,128,64,64,64,
32,32,32
.TL 3:27,75,24,Ø,32,16,16,16,8,8,4
,4,2,2,1,1,2,2,1,2,2,4,4,8,16,32,64
,128,1Ø,13
Type in ctrl U and ABC note the line feed and carriage return are on the end of the third line this time.

Transliterations needed for eighth line. On this line there was so many zero's we could use the one line twice.

.TL 1:27,75,24,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,
Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø
.TL 2:27,75,18,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø
Ø,Ø,112,76,66,65,13Ø,156,224,1Ø,13
Type in ctrl U AAB

This next one is to turn off all special printer modes and resets top of form.

.TL Ø:27,64
Type in ctrl U and shift 2

Notice how I transliterated the same characters over and over again. The reason for this is, that if I need to change any of those characters back to what they were originally there are not many to change. One last thing, when you wish to print out graphics like this you still have to use PIO.CR. Which means the formatter will not print out your text properly, so if you want some graphics on the page with your text you will have to print it out as two or more seperate files. One other tip to type in a full line of 8Ø characters turn the line wrap off with function zero.

I hope this all makes some sense to you people out there, if not please let me know and I will try to explain it a little more.

A QUICK SCREEN FULL

Ever wanted to fill the screen with a particular pattern? Maybe an opening screen for a programme or some response to a User input.

To do that usually means a FOR/NEXT loop or a series of PRINT Statements. Using any of the more usual methods results in the characters flowing down or up the screen.

Here is a small sample programme which does the job quickly. Hope it stirs the grey matter and results in you comming forward with one of your ideas in the Newsletter.

```
100 CALL CLEAR
110 CALL
CHAR(32,"FF7E3C18183C7EFF")
120 CALL CLEAR
130 GO SUB 2000
140 CALL
CHAR(32,"81C3E7FFFFE7C381")
150 CALL CLEAR
160 GO SUB 2000
170 GOTO 110

2000 FOR A=1 TO 50
2010 NEXT A
2020 RETURN
```

Of course the BREAK key will need to be pressed to stop the programme once started.

THE ROOSTER.

FUNNELWEB VERSION 4. 0

by

AL LAHRENCE

Available on 1 DS/SD,2 SS/SD or 3 35 track disks. There are 27 Files incl. 6 of which are become a comprehensive 'drivers manual', well worth reading to get the best from your investment.

FUNNELWEB V 4.Ø is FAIRWARE and the cost covers only media and cost of distribution only. The authors ask for what you think it is worth to you.

==========

First for all the Funnelweb V4.Ø dated earlier than Nov 4th, there are a few simple patches to be made to correct a few minor bugs which crept into the Pre-Release Testing disks.

Use your favourite Sector Editor or the one on the Funnelweb disk (DP).

FP last sector byte >63 change >0B to >Ø9

ED at >2E24 change >ØØ6E to >Ø9FA
If first sector is >C1 look at >2A on sector >CF and change to >Ø9FA

QD 3rd sector bytes
>BF change Ø6 to Ø7
>CF 7B 72

UTIL1 5th sector bytes
>29 change Ø6 to Ø7
>39 7B 72

==========

CAUTION ** On returning to F'web after using the SL feature, press the 7 (RESET) option to reset the computer as some long files may corrupt the environment.

==========

NB *** First make BACKUP copies as the customising of your disk is now made using the CONFIG option that is available from two MENU's.

Loading via UTIL1
Menu Screen now has 7 options:

1. EDITOR	EDITOR
2. ASSEMBLER	FORMATTER
3. LOADERS	DM-1ØØØ
4. c-COMPILER	MODEM
5. DISK-PATCH	DATA BASE
6. UTILITY	UTILITY
7. RESET/QUIT	USER LIST

Pressing any key switches between the above two menu's, the initial screen selection depending on the Module in use.

Option 6 is now for the adding of your favourite Utilities.

Selecting USER LIST now gives a menu listing.

1. ..
2. ..
3. ..
4. ..
5. MYARC DM
6. NEXT UL (new feature)
7. CASSETTE
8. CONFIGURE
9. CART ROM

From the Menu select CONFIGURE.

(CONFIGURE is also option I on the first Menu screen when LOADing from the XB Module.)

*** After loading CONFIG the user is presented with step by step USER FRIENDLY instructions to read and follow throughout. By carefully following them no problems should be experienced. After the new LOAD and UTIL1 have been saved to disk return to FWEB and QUIT via RESET/QUIT option 7 and Reboot to ensure it is set up as you required.

Read the first screen on Config and by pressing any key we get:

1.CONTINUE NORMALLY
2.REDO USER LISTS
3.REDO CONFIGURATION
4.BACK TO FWB Vn 4.Ø

Press 1 to set up the following-
Boot Tracking.
Utility drive Default.
Printer set up.
Workfile Default.
Both User Lists.
Both UTILITY # 6.
Color choice.

1. CYCLE COLORS(Window Display)
2. SELECT AGAIN
3. ORIGINAL SET
4. NEXT SCREEN

Edit Central Menu UL
Edit XB Load and UL

*** TIP save Central Menu after editing and before editing XB Load.

1. UTIL1
2. RELOAD

A choice of name is now offered if you have some other program that must be named UTIL1 as a Default.

*** The user MUST use CONFIG to set up the system and not Fctn 4 while loading in XB mode as in previous versions. As well, none of the files are compatable with previous ones as all have been tightly coded to each other on the distribution disk.

CONFIG can also be loaded from Opt 3. PROGRAM FILE E/A loaders, and also need not be on the work disk as it can be called from any DSK# once the system is configured. One can have any number of Horizon Ramdisks,Myarc Cards or floppy disks in the system.

Show Directory (SD) or Fctn 7 now has # 1 to 9 and Ø on the left to make file Marking easier. Along the bottom of the screen an aid -
Back(shf) Next(ctl) Pchk(=)
Mark(num) (V)iew (P)Dir (O)ldF
(D)elF Exit(ent)

Shift/Control keys Page through the directory if multipaged.

Pressing P prints the directory in two column format.

Pressing D deletes file (asks are you sure)

Pressing = key informs type of program - E/A or BX (Basic/Xbasic)

SD can be activated while printing a DOC in the Formatter but Marking in disabled in this mode.

Editor now has a Tab line with the numbers Ø..to..7. at the EoF bottom line.

If SD is used to View a different file than the one Editing, at the bottom of the screen is the DSK# and Name as well as the Start and Finish line #'s.

Ctrl C or Fctn 9 aborts the viewing mode but REMEMBER to press O (for Old) after Viewing to cancel the file marking otherwise the name is carried back to the Mailbox and you may save to the wrong file name.

A beep lets you know you have 5 spaces to the end of the line.

Color selection in the various menu is made by pressing Ø (zero) or Ctrl 3 in Editor if your eyes tire of the default ones.

Up to 15 Batch Files may be loaded and saved using SL and SAVIT.

* "c" users note caution above.

Users with 8k/32k Super Carts can run CT8RAM to install FWB in it.

Second user list to be named UM can be placed on any disk and loaded from the DSK# in the UL Config.

The latest ARCHIVER has RETURN to F'WEB now as an option on the Menu, and even TIsHUG use Modified versions of earlier loaders on the software that support their Modem and Mini PE Box hardware.

All the TI community should thank Tony and Will (is it true he has a new PLAYMATE, AMIGO's ??) for giving so much to us all. I would hate to be PAYING commercial hourly rates to them. Even the electricity bills are high (if Neil Armstrong was going overhead there would no need for any city to have their lights on at night to guide him!).

The time given to me by the EDITOR to review this is being interrupted by the phone (ED - "Is it ready to MODEM up to me, the presses are rolling soon!) is only enough to skim the POWER of FWB 4. I only hope to open a small window into the great powers this can do, either alone or with other software and hardware.

Finally, some DO's and DONT's.

DO read ALL the doc's.

DO read all the aids on the screens

DO send all the Bread and Folding stuff to feed the latest Animal at the FARM as it has expensive tastes in the way of interaction GAMES it plays with its proud owner Wills.

DO pass it around to friends and foes alike, who knows we may win some of them back to the UG's.

DON'T FORGET to send them some REAL MONEY as well as the above. OK as they say in FORTH (which can also still be loaded from the XB screen)

Comment. Premier and Priceless.

Best Feature. I will leave each and everyone to find out,as we all look for something different and no user will be disappointed as there is so much for so many.

Rating. *****

THANK YOU TONY and WILL McGOVERN.

FIND THE ASCII NUMBER

```
! VAST NEWSLETTER NOV '87
! PROGRAM BY
! TOM MORAN
100 CALL CLEAR :: CALL SCREE
N(11):: DISPLAY AT(12,9):"PR
ESS ANY KEY"
110 ON BREAK NEXT
120 DISPLAY AT(1,1):"    KEY
BOARD/ASCII SEARCH" :: DISPL
AY AT(2,1):RPT$("-",28)
130 CALL KEY(0,K,S):: IF S=0
 THEN 130
140 IF K>128 OR K<32 THEN 15
0 ELSE 160
150 PRINT "Character:    - no
t defined -" :: GOTO 170
160 PRINT "Character:    ";CH
R$(K)
170 PRINT "ASCII #:     ";K :
: PRINT :: GOTO 120
```

ONLY ONE THANKS

This tip is from and old Tassie newsletter. "Ever wanted to enter a CALL KEY statement that would only take one input at a time, no matter how long you held the particular key down? Here is an example that may help.....

```
110 CALL KEY(0,K,S)
120 IF S<1 THEN 110
```

By restricting the status to a +1, you can control the unit more easily. This overcomes the problem of the sometimes repeating key.

THE ROOSTER

```
10 !TINYWAVE
   !A TINYGRAM
   !by John Witte
   !Omaha TI UG
11 CALL CLEAR :: A$(1)="ABCD
EFGFEDCBA" :: FOR I=1 TO 7 :
: CALL CHAR(72-I,RPT$("0",2*
I-2)&"FFFF",47,"3030EFF7F3E
1E04"):: A$(I+1)=SEG$(A$(I),
2,12)&SEG$(A$(I),2,1):: NEXT
 I
12 CALL SPRITE(#5,47,2,180,1
80,-23,0,#6,47,2,80,100,-23,
0):: CALL MAGNIFY(2):: CALL
SCREEN(6)
13 FOR I=1 TO 12 :: PRINT A$
(I+(I>7)*2*(I-7))&A$(1+I+(I>
6)*2*(I-6)):: NEXT I ::
GOTO 13
```

FOR SALE

1 TI PHP1220 RS232 Card.....$110
1 TI PHP1260 32K Card.....$45
2 TEAC 1/2 ht SS/DD drives...$65ea

CONTACT
Duncan Pawley
02-933531

PROGRAM DESCRIPTIONS

This article originally appeared in the August '86 issue of SHOALS TIdings, and was written by Gil Gilmore. The article came to us in the January '87 issue of BAYOU BYTES, the Newsletter of the Bayou 99 User Group of Lake Charles, Louisiana, USA

I've heard several questions lately about how to tell what's on a disk. You can get a pretty good idea just by looking at the catalog. Most of this information has appeared in various newsletters and I don't make any claims to anything startlingly new or different. To me, most of what I've read is backwards: it tells what a particular type of program will look like on the disk catalog.

Here is what to expect when looking at a disk catalog, like when you get a disk from the library and don't quite know what you've got.

PROGRAM - This is the most commonly found type and also the least informative type description. You can, however, get some hints from the size of the program:-
33 Sectors - probably an assembly language program. Try option 5 of E/A, especially if there's another title that is the same except for the last letter or number of the file name.
> 33 Sectors - try Basic or XB. You may have to free up some extra memory with CALL FILES(1), NEW, OLD DSKx.name, RUN.
< 33 Sectors - try in order B, XB then E/A
52 Sectors - Tunnels of Doom programs generally use this format for data files.
54 Sectors - The Scott Adams adventures use this format.
Other Program files - It's likely that you have found a data file for another program. Don't erase it or you may find something else won't run properly.

DIS/VAR 80 - These are usually documentation files to explain one or more programs on the disk. Usually they'll have a name similar to others on the disk except ending in DOC. You can read these by using a TI-Writer type program (TK-Writer, BA-Writer, FUNNELWEB, etc) or by using EDIT from the E/A Cartridge.

DIS/VAR 163 - Most likely a MERGE format file in XB. Check it by entering MERGE DSKx.filename then LISTing it.

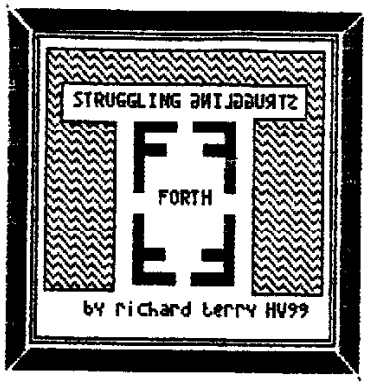
DIS/FIX 80 - These are Assembly language programs which can easily be run if you know the program start name. Start out with the LOAD & RUN option of E/A o Mini-Memory. When asked the filename enter DSKx.filename and press <ENTER>. Sometimes it will load and start running. More likely it will ask for a file name again and you will just press <ENTER>. Here's where it gets tricky. The next question will be PROGRAM NAME. Often someone will have scratched it in beside the name on the disk jacket. If not, try some of the more likely choices such as START, BEGIN, RUN, LOAD, GAME, the file name etc. Check the documentation files on the disk; it may be included in that file. If all else fails, read the directions. If you have a disk manipulator type program you can often find the starting name by searching the last five sectors of the program.

HV Editors note: Naturally, if you are using FUNNELWEB, you do not have to try and guess the Program Name - it shows up on screen when the file is loaded.

INT/VAR 254 - These are usually more than 50 sectors long and are usually a long XB program. You'll likely need to have at least 32K of memory expansion.

A FEW NOTES...
Console BASIC and XB programs will load and run ok through XB; the most likely failure will be a crash with a BAD VALUE IN xxx message. It probably had used characters above 143 which aren't available to XB. Another problem in BASIC is the use of colons as print line feeds. XB interprets them as statement separators and reports a syntax error. If you try to run an XB program in BASIC you'll probably get a FOR NEXT ERROR IN xxx because the NEXT part of the sequence had been ignored when it comes after a double colon statement separator. Any commands that are XB only will be read as garbage in BASIC.

```
SCR #238
  Ø  ( NOVEMBER 1987)
  1  ------------------------------------------------------------
  2  -
  3  -    STRUGGLING FORTH
  4  -
  5  -    HV99ERS  DECEMBER ARTICLE 1987
  6  -
  7  -    - GENERAL GOSSIP
  8  -    - THE NEW NOVIX CHIP
  9  -    - A FORTH SYMPOSIUM/WORKSHOP
 1Ø  -
 11  -      ARTICLE
 12  -
 13  -    - BAR MENU WINDOWS
 14  -
 15  ------------------------------------------------------------
```



Well, how to start. Its been many months since I put finger to Funnelweb!

First some general gossip. One of the reasons I havn't contributed to the magazine in the recent months, apart from pressure of work, was a much needed six week trip o/s, with visits to much missed friends in various parts of the globe from Hong Kong to Holland and the UK and Canada. Although I regret not finding time to pop in on the UK groups, I did manage to visit the TI-RUNNERS in Calgary. Many thanks to the hospitality shown by the club members and specially to George Gaab. I rocked up at his house, co-incidentally on the monthly club meeting night, one half hour before it was due to start. George must be the archtypical TI user. After a long wait at the front door, it was finally opened by his wife, who yelled out to George it was for him. From the dungeons came a shout " send em down". Negotiating the stairs and corridors I found the man ensconced in a crowded room full of computer gear, manuals, magazines and cigarette smoke. I was made most welcome on this and several other visits and was treated to much hospitality and amber liquid and a demonstration of just how fast a Toyota Supra can go at 4500rpm in 5th gear with the turbo power pushing me back into the seat. All this in a 60km/hr zone on a Calgary ringroad. However I can assure you the 110MPH we hit in a few seconds seemed very safe!

George very kindly gave me quite a few disks of programmes which I have handed over to the club librarian for distribution.

Thanks a lot George.

Whilst O/S I bought quite a few 8K CMOS chips in HK, and with one of the locally produced circuit boards have got my forth dedicated RAMDISK up and running as no.2 Ramdisk. I've had quite a few problems with the board to date. It is not as well constructed as the HORIZON board, mine was bent in a nice concave curve. As well, the through hole plating is nowhere near the quality. On final testing 4 of the chip banks would not respond which was traced to 8 microfractures in the data line tracks one of which was as wide as a razor blade. They were all just adjacent to the plated through holes. A friend of mine who is an electronics engineer and has been building custom boards for commercial purposes for years helped me sort out the problems and was not at all impressed with the quality, but thought the HORIZON board was very well engineered. My advice is to buy the HORIZON even if you pay more.

THE NEW NOVIX CHIP.

I've been following the development of this chip for several years. Basically it is a chip designed to run Forth code and only Forth code, built and designed by NOVIX, I believe in association with Charles Moore. Of course one can compile other languages into Forth to run on it, but well.....!

If you want the details there are two good articles in the November and December issues of YOUR COMPUTER

magazine by Roy Hill. Basically according to him it will be available on a board from MAESTRO who work out of the Gosford area. The NC4016 chip runs at a guaranteed 4MIPs upgradable to 8-12MIPs, figures which I find meaningless. To put it in perspective the current chip will run 100 times faster than a stock standard IBM XT/clone, and an upgraded enhanced version about 1000 times faster. It is being built onto a board by MAESTRO, including some RAM, EPROM BURNER and perhaps a speech synthesizer from memory (extra cost?) and will slot directly into an IBM compatible. However should you not own one like us, it will run on any computer with a serial port at any baud rate. You can even build your own computer up from it. I think price is around $699.00.

I hope this recollection is fairly accurate as I lent the magazine to a friend and am trying to recollect.

MAESTRO can be contacted on 043 682277 or at Calool St Sth Kincumber 2256 (I think), and they will send you out some details.

A FORTH SYMPOSIUM

This has been organised as a non-profit venture by Roy Hill of Your Computer and a Paul Walker, I think of the NSW Institute of Technology. It will cost around $100.00 for the weekend of 18/19 of ?May (am unsure of month), and features a series of lectures and workshops. The guest speaker will be -wait for it- none other than the father of Forth: Charles Moore himself.

A real must. If anyone would like to form a group to go phone me at once. Details can be obtained from:

Roy Hill
Your Computer
PO Box 227
Waterloo
2017.

FORTH MEETINGS IN 1988.

See advert this issue. I'm hoping there will be two types. Firstly a beginners class if the demand for it is there, at which the older hands WILL NOT be welcome, and secondly some regular get togethers for those with some proficiency, ie the old hands. Lets hope more people continue to see the light.

THIS MONTHS ARTICLE.

As is the policy of all my previous articles, I include all the screens necessary to run this demonstration, which is of using reverse video to highlight menu choices, allow the user to make a choice, and then run the program.

To see it, type the screens at the end of the article. The options needed on top of the core Forth are -GRAPH and -VDPMODES. After typing it in LOADing screen 614 will let it auto-run. Using the function E,X keys will zap you up and down the menu, and hitting ENTER will end the routine.

BAR-MENU WINDOWS.

Its nice to keep up with the formats in modern programs. Most of you will be familiar with the now standard use of pop up windows (as described in previous articles) with the options high-lighted in reverse video as you run up and down the menu's. Some people argue against their use. I must admit I initially found it much easier to construct programs with the standard method of choice by numbers or letters. It certainly is fractionally faster. However its also much easier to hit the wrong key, and jump into a part of the program not always easy to get out of. Using the bar-window method, one must not only select an option by highlighting, but must hit enter to run the option, which reduces mistakes to nil.

Most of the code for this example is lifted out of a program I've written which enables me to design all the windows I need for other programs. I've modified some of the code for presentation here. Usually I flash up windows kept in the VDP chip. Here I include the code to write up the options and draw a box around them, and the code to allocate the patterns to the characters to draw the box. This is all unnecessary in an application which uses VDP windows and its own purpose built pattern descriptor table which I've discussed before. I've seen Bob Carmony's recent article of loading

new character sets and still reckon mine method is heaps faster, needing no compilation, just a single disk access to dump a new PDT into VDP ram (see previous article)

THE CODE

The character set inversion necessary to reverse the foreground and background of the desired letters is found on screen 605. I've seen many versions of how to invert the characters, but this one is definitely the most efficient. I'd love to acknowledge the author but don't know who it is. Thanks anyway. The word need only be invoked once at the start of the program, and basically works by reading all the character codes to PAD, and then re-writes them back from char spots 128->255, then inverts them with VXOR. If you then desire you can save them to disk as described in previous articles and re-Load the inverted charset as part of your bootup routine so you never even have to keep INVERT-CHARSET in your coding.

Run the program and see how it works.

HOW IT WORKS.

Lets examine the key word ie EDIT-CHOICE

EDIT-MENU

simply flashes up the window with the options (see diagram 1). As previously mentioned this is slow and would be done otherwise in an actual application.

SET-EDIT

This is the most important word in the routine, as it sets up the parameters later needed to know where the window is, how wide the words within it are etc. In this case our words are max of 7 letters wide, we start writing to col 1 row 3 (vdp 121) and zero the window line we start on and set ?REV-VIDEO to 1 to highlight the first option, and tell the routine there are 10 lines in the window.

As the words VIDEO-DISPLAY, UP/DOWN/ENTER, RE-CHOOSE ETC are general words, you can use them in many windows within your program, and create new SET-..... words according to where your windows are on the screen, how many lines etc.

The core of the word EDIT-CHOICE, between BEGIN.... UNTIL, then controls the running up and down of the bar, in response to the control keys, function X(down) and function E(up). VIDEO-DISPLAY displays the line pointed to by WINDOW-LINE in reverse video then awaits the users next request ie by UP/DOWN/ENTER. This word updates CURRENT = current line to use, and will leave a 1 on the stack if the user has hit ENTER, ie wants to run the option the menu bar is currently on. If the user wanted to go up/down, RE-CHOOSE rewrites the old option in normal video, updates the WINDOW-LINE value, inserts a delay, and leaves a 0 on the stack for the UNTIL of EDIT-CHOICE allowing the whole routine to start again.

If anyone has a neater routine please let me have it. I'm sure its possible, I havn't bothered because this one works.

RUNNING APPLICATION FROM WINDOW.

Refer to screen #252.

When the user hits the enter key, the value left in the variable WINDOW-LINE will correspond to the line the reverse video was on. Note I count from 0 as the first option, hence in the word EDIT-ACTION the value in window line is incremented by one for the case statement to make for easier reading. I could just have left it as CASE 0 of .... CASE 7 of...., perhaps to be logical I should have....!

Once again, though the codings look long and involved they take up very little memory. I actually include them in my core code, as all my programs make use of this facility.

That's all for the Xmas issue. I'll try and write again next year if I find time. I've still to come forth with my offer of the any-size-editor havn't I. I've also got some good codings for the transfer of DV80 files onto Forth screens to allow program documentation to be written in TI-writer, codings for generating

and saving character codings, electronic dictionary and much more.

Bye for now

ADDRESS FOR CORRESPONDENCE:

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141 DUDLEY RD
WHITEBRIDGE 2290
PHONE: (049) WK:436861
HM:229450

```
SCR #239
  0 \ Bar menu for magazine            28Nov86
  1
  2 : START ;  \ typing FORGET START will delete entire application
  3
  4 0 VARIABLE WORD-WIDTH              \ no. of char in window line
  5 0 VARIABLE START-VDP               \ scrn vdp pos first bar starts
  6 0 VARIABLE WINDOW-LINE             \ currrent line of window
  7 0 VARIABLE ?REV-VIDEO              \ flag 0 = not reverse video
  8 0 VARIABLE CURRENT                 \ current line being displayed
  9 0 VARIABLE TO                      \ maximum line no
 10 0 VARIABLE FROM                    \ min line no. 0 = first line
 11
 12
 13
 14
 15
```

```
SCR #240
  0 ( SINGLE BOX:Frame characters   10Feb87)
  1 HEX
  2
  3 00FF 0000 0000 0000 83 CHAR ( 131 SINGLE UNDERLINE                )
  4 8080 8080 8080 8080 85 CHAR ( 133 SINGLE LINE RIGHT VERTICAL      )
  5 0404 0404 0404 0404 86 CHAR ( 134 SINGLE LINE LEFT  VERTICAL      )
  6 0000 0000 0000 00FF 87 CHAR ( 135 SINGLE LINE BASELINE            )
  7 8080 8080 8080 80FF 88 CHAR ( 136 SINGLE LEFT BOTTOM  CORNER      )
  8 0404 0404 0404 04FF 89 CHAR ( 137 SINGLE RIGHT BOTTOM CORNER      )
  9 FF00 0000 0000 0000 80 CHAR ( 128 SINGLE LINE TOP                 )
 10 FF80 8080 8080 8080 81 CHAR ( 129 SINGLE TOP LEFT CORNER          )
 11 FF04 0404 0404 0404 82 CHAR ( 130 SINGLE TOP RIGHT CORNER         )
 12
 13 DECIMAL
 14
 15 \ all the new characters needed for a single box frame


SCR #241
  0 ( SINGLE BOX - Single frame box 11Feb87)      ( CHECKED CLEAN)
  1
  2 \ same as pick
  3 : P    2 * SP@ + @ ;  ( put copy of nth number to top of stack)
  4
  5 \ draw a single framed box around somthing
  6 : SBOX ( Leftcol/up row/Rghtcol/lower row single box routine  )
  7        4 P  4 P                 1 129 HCHAR   ( upper left  cnr )
  8        4 P  OVER                1 136 HCHAR   ( lower left  cnr )
  9        OVER 4 P                 1 130 HCHAR   ( upper right cnr )
 10        OVER OVER                1 137 HCHAR   ( lower right cnr )
 11        4 P 1+ OVER 4 P 1- 7 P - 135 HCHAR   ( lower horizontal)
 12        4 P  4 P 1+ 3 P 1- 6 P - 133 VCHAR   ( right vertical  )
 13        OVER 4 P 1+ 3 P 1- 6 P - 134 VCHAR   ( left  vertical  )
 14        4 P 1+ 4 P  4 P 1- 7 P - 128 HCHAR   ( upper horizontal)
 15                                 3DROP DROP ;


SCR #242
  0 \ Bar menu magazine article      28Nov87
  1 \ Menu screen easy example
  2 : EDIT-MENU
  3                CLS
  4                0  0  8 13 SBOX
  5                1  1 AT ." Options"
  6                1  3 AT ." Edit"
  7                1  4 AT ." Copy"
  8                1  5 AT ." Frame"
  9                1  6 AT ." Load"
 10                1  7 AT ." New"
 11                1  8 AT ." Save"
 12                1  9 AT ." Title"
 13                1 10 AT ." Unframe"
 14                1 11 AT ." View"
 15                1 12 AT ." Quit" ;
```

```
SCR #243
  Ø \ Screen draw
  1 \ General validate o n numbers, leaves flag/ascii code
  2 : VALIDATE                          \ Exp ascii, n(x),n1..nx
  3                 Ø                   \ assume untrue,false flag
  4                 SWAP ROT
  5                 Ø
  6                 DO    ROT
  7                       OVER
  8                       =
  9                       ROT
 1Ø                       MAX
 11                       SWAP
 12                LOOP
 13                SWAP                \ leaves ascii,flag
 14                ;
 15 \ Eg 1Ø 13 14 (funct keys) 3 (of them) 1Ø (funct key) VALIDATE


SCR #244
  Ø \ DV8Ø Files  - view              3ØMar87
  1
  2 \ adjusts current screen to be next or last, validates limits
  3 : LAST                              \ expects nothing on stack
  4                 CURRENT  @ 1- DUP   \ decrement current screen
  5                 FROM @              \ start screen number
  6                 < IF 1+ THEN        \ under range,add 1
  7                 CURRENT  !          \ this is now the current one
  8                 ;                   \ flag on the stack
  9 : NEXT                              \ expects nothing on stack
 1Ø                 CURRENT  @ 1+ DUP   \ increment current screen
 11                 TO   @              \ end   screen number
 12                 > IF 1- THEN        \ over  range,decrement by 1
 13                 CURRENT  !          \ this is now the current one
 14                 ;                   \ flag on the stack
 15


SCR #245
  Ø \ Windows invert charset
  1
  2 HEX
  3 : INVERT-CHARSET
  4                 8ØØ PAD 4ØØ VMBR    \ Xer Ø->127 to PAD
  5                 PAD CØØ 4ØØ VMBW    \ re-write back to PDT
  6                 1ØØØ CØØ            \ range of 128->255
  7                 DO FF I VXOR LOOP ; \ invert these
  8 DECIMAL
  9
 1Ø
 11 \ this is the most efficient character set inversion routine.
 12
 13
 14
 15
```

```
SCR #246
  Ø \ Titlescreen - change video
  1 \ display the line in either standard or reverse video
  2 : VIDEO-DISPLAY                       \ expects nothing on stack
  3                 WORD-WIDTH @ Ø        \ width of word ,Ø for loop
  4                 DO
  5                   START-VDP    @      \ start vdp position
  6                   WINDOW-LINE @       \ window line to start on
  7                   4Ø * + I + DUP      \ 2 copies of vdp address
  8                   VSBR                \ read the byte from here
  9                   ?REV-VIDEO @        \ turn on = 1, Ø = normal
 1Ø                    IF    128 +         \ on use chars from 128
 11                    ELSE 128 -          \ off use normal char set
 12                    THEN SWAP           \ byte, vdp adr
 13                  VSBW                  \ rewrite it the correct way
 14                LOOP
 15                ;                       \ leaves nothing on the stack


SCR #247
  Ø ( KEYBOARD  - Key choice words  13FEB87)     ( CHECKED CLEAN)
  1
  2 ( selects user inputted choice, here up, down, or exit routine )
  3 : @KEYS:F'N,E,X;ENTER           ( exp nothing                    )
  4           BEGIN                 ( start indefinite loop          )
  5                 1Ø 11 13 3
  6                 ?KEY            ( check for any key press Ø =none)
  7                 VALIDATE        ( Ø=non val/1=X,E,5,enter pressed)
  8                 IF    1         ( if valid,true flag to leave    )
  9                 ELSE DROP Ø     ( invalid,drop key copy,false flg)
 1Ø                 THEN            ( continue rest of definition    )
 11           UNTIL                ( until tests flag,do again if Ø )
 12           ;                    ( leaves ascii code of valid key )
 13
 14
 15


SCR #248
  Ø \ DV8Ø Files  - view              3ØMar87
  1
  2 : UP/DOWN/ENTER                     \ expects nothing on stack
  3                 @KEYS:F'N,E,X;ENTER \ allow only these, leave asci
  4                  CASE
  5                 1Ø OF NEXT  Ø ENDOF \ F'n X=next Ø for next UNTIL
  6                 11 OF LAST  Ø ENDOF \ F'n E=last Ø for    "    "
  7                 13 OF       1 ENDOF \ enter key  Ø for    "    "
  8                  ENDCASE  ;
  9
 1Ø
 11
 12
 13
 14
 15
```

```
SCR #249
  Ø \ Parameters for main menu
  1 \ time delay
  2 : DELAY  Ø SWAP DO NOP LOOP ;
  3
  4 : RE-CHOOSE      Ø ?REV-VIDEO !     \ video display to normal
  5                  VIDEO-DISPLAY      \ display it now
  6                  CURRENT      @     \ updated current line number
  7                  WINDOW-LINE  !     \ is now line to be displayed
  8                  1 ?REV-VIDEO !     \ in reverse video again
  9                  5ØØØ  DELAY        \ lets wait a while
 1Ø                  ;                  \ expects nil, leaves nil
 11
 12
 13
 14
 15


SCR #25Ø
  Ø \ Parameters for edit menu
  1
  2
  3 : SET-EDIT
  4                   7 WORD-WIDTH  !    \ window is 9 characters wide
  5                 121 START-VDP   !    \ starts at this vdp position
  6                   Ø WINDOW-LINE !
  7                   Ø CURRENT     !    \ this is current line to show
  8                   1 ?REV-VIDEO  !    \ make it reverse video
  9                   Ø FROM ! 9 TO !    \ 6 line limit
 1Ø                   ;                  \ expects nil leaves nil
 11
 12
 13
 14
 15


SCR #251
  Ø \ Window-maker:main menu choice
  1 \ displays menu, inits parameters, allows user to choice
  2 : EDIT-CHOICE
  3                 EDIT-MENU             \ display this window
  4                 SET-EDIT              \ set up video parameters
  5                 BEGIN
  6                  VIDEO-DISPLAY        \ display it in reverse video
  7                  UP/DOWN/ENTER        \ choose up/down/enter
  8                  Ø=                   \ Ø means up or down
  9                   IF   RE-CHOOSE Ø    \ hightlight next option
 1Ø                   ELSE           1    \ enter pressed leave loop
 11                   THEN
 12                UNTIL
 13                ;                      \ leave if top stack = 1
 14                                       \ leaves nothing on stack
 15
```

```
SCR #252
  Ø \ Screen draw - master choice       6May87
  1 : EDIT ; : COPY ; : FRAME ; : LOAD1 ; : NEW ; : FRAME ; : TITLE
  2 ; : UNFRME ; : VIEW ; : SAVE ;
  3 : EDIT-ACTION                              \ expects nothing on stack
  4               WINDOW-LINE @ 1+             \ current line on in menu
  5          CASE 1 OF EDIT    Ø ENDOF \ if 1 new editing screen
  6               2 OF COPY    Ø ENDOF \ if 2 edit an old screen
  7               3 OF FRAME   Ø ENDOF \ if 3 configure system
  8               4 OF LOAD1   Ø ENDOF \ if 5 save titlescreen/chart
  9               5 OF NEW     Ø ENDOF \ if 5 save titlescreen/chart
 1Ø               6 OF SAVE    Ø ENDOF \ if 5 save titlescreen/chart
 11               7 OF TITLE   Ø ENDOF \ if 5 save titlescreen/chart
 12               8 OF UNFRME  Ø ENDOF \ if 5 save titlescreen/chart
 13               9 OF VIEW    Ø ENDOF \ if 5 save titlescreen/chart
 14              1Ø OF QUIT    1 ENDOF \ if 5 save titlescreen/chart
 15                 ENDCASE    ;       \ end of case statement


SCR #253
  Ø \ Bar menu -final run words
  1
  2 : EDIT-ACTION ;
  3
  4 : RUN
  5         EDIT-CHOICE
  6         EDIT-ACTION
  7         ;
  8
  9
 1Ø
 11
 12
 13
 14
 15


SCR #254
  Ø ( Bar menu example load screen          )
  1 : \    IN @ 64 / 1+ 64 * IN ! ; IMMEDIATE  ( ignore rest line  )
  2 : THRU 1+ SWAP DO I . I LOAD LOOP ;
  3
  4 239 LOAD
  5 241 253 THRU
  6 INVERT-CHARSET
  7 240 LOAD
  8 RUN
  9
 1Ø
 11
 12
 13
 14
 15
```

..IMPACT-99..
T.I. Happenings

by Jack Sughrue
Box 459
E Douglas MA 01516

"DISAPPEARING GAMES"

At one time you could get ZORK II from INFOCOM. No more. It is one of the great disappearing games of the TI Era. What will be next? INFIDEL? THE HITCHHIKER'S GUIDE TO THE GALAXY? WITNESS? ENCHANTER? Or the most peculiar SUSPENDED?

Who knows?

But when these and the following are gone from INFOCOM's stock, there will be no more: DEADLINE, STARCROSS, ZORK I & III, SORCERER, PLANETFALL, and CUTTHROATS. These dozen games from the most creative adventuring minds in the computer business are all that's left for the 99. But it is a very large ALL.

While the price is still around $45 on the average for the IBM, Apple, and Commodore versions of the same games, TI owners have an opportunity to get them for $14.95 each. (Actually $16.95 each as it costs an additional $2 per game for shipping and handling, as it does for IBM (for a total of $47). Let's say you plan to get 10 of these extraordinary (and very long) games. For the TI - $169.50; for the others - $469.50.

This is one of the best buys in the industry. You could buy the whole dozen for less than half a dozen of the others.

Are they worth $46.95?

They sure do SELL at that price. If you've ever played one of the games (particularly with friends), you will understand why. Some of the games take months. I have not finished the Zork series which I started four years ago.

With Infocom you don't just get the two disk sides, you get a whole environment. In HITCHHIKER, for example, you got a space travel booklet, a *DON'T PANIC* button, a handbook, very unusual glasses, a microscopic space fleet, and numerous other essentials. DEADLINE included all the clues the detective uncovered in the process of the investigation. SUSPENDED has - er, a sort of movement thingie like a gameboard sort of and - uh - stuff.

You buy an environment. And you play it a lot, get deeply involved (forgetting the incessant crises of reality), and, when finished (IF finished), put it away for your grandchildren. Each game is worth playing again even after you've achieved victory (or whatever it's called in SUSPENDED) because there is more than one way to skin a bugbladder beast from Traal.

If you've never played an adventure game of any kind, I'd suggest you begin with the easiest adventures you can find. They are in many user-group libraries. Gradually work up to Scott Adams Adventures. You'll need the cartridge (which is very inexpensive these days) and a cassette or disk with the games. Some of these are not easy. But they are all fun. Particularly if you CHANGE your way of thinking. If you problem-solve in fantastic ways you will succeed readily. When something seems impossible, try the impossible.

And be organized. Make maps, take notes. Play the adventure with others.

Then, if you still enjoy the adventuring, go to INFOCOM. There are lots of graphics type adventures around, too. Tunnels of Doom adventures, Old Dark Caves, Legends, things like that. Excellent. But INFOCOM's and Scott Adams's are strictly in the theater of the mind. They are totally text adventures.

Nothing equals them.

They are novels in which YOU are the main character. Called "interactive fiction," they are the mind-stretchingest literary computer activities you can engage in.

Even kids like them.

But they'd have to be bright kids and at least junior high age.

If worse comes to worse and you get deeply stuck inside one of your new INFOCOM worlds, you could always come out and buy an invisiclue book from INFOCOM that will let you uncover inch-by-inch the method needed to solve the particular adventure you are working on. They sell a lot of these books, but no one of my adventuring acquaintance has ever owned up to getting one of these clue books. I certainly wouldn't use them. (Heh, heh!)

INFOCOM has just released its latest catalog. The prices (and the games for TI while they last) are good until October 31, 1987. Just in time for Midwinter's Solstice gifts (or Christmas or Channukah). This may be your last opportunity to own these wonderful "worlds".

To order send a check to INFOCOM, PO Box 478, Cresskill, NJ 07626. Ask to be put on their mailing list to receive their zany newsletters (now being sold as classics in packages for $10). Give the title of the game (see above). Be sure to specify that these are for the TI-99/4A (as they also make some for the TI Professional) and pay $16.95 per game (includes S & H). Or better still to make sure there are still some of what you want available, call your credit card order at 1-800-262-6868.

Then if you make it to reasonable safety (but not necessarily reasonable sanity) aboard the Vogon space ship you have to remember to use your bathrobe to help catch the babel fish for your ear. Otherwise, you and Ford Prefect just might get chucked into the vaccuum of space.

If you follow me.

XXXXXXXXXXXXXXXXXXXXXXXXXXXXX

We here at IMPACT-99 headquarters take no responsibility for any loss of marbles or looseness of screws connected with the reader's engagement with the INFOCOM loonies.

But we do wish we had a share in the corporation.

ZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ

Questions sent in by readers this month (two; one from Iowa, one from Connecticut):

1)Where can one get the directions for WINGWARS?

Answer: I don't know. Does anyone know where to get WINGWARS? I think that's the game that had a dragon flying through gem-filled clouds and into mountain caverns. I saw it years ago. I can't remember where, but I still recall it as having the best graphics ever done for TI. Does anyone out there have WINGWARS or know what the directions are or where it can be purchased?

2)Do you know of any good cribbage games for the TI? Answer: Yes and no. Way back in the early days of 99er magazine there were a few companies that offered cribbage games for the TI. By the time I started sending for some, the companies had died. There are even some listed in the first TI software books of third parties. I sent there, too, but never got answered. Though there are lots of cribbage buffs out there in TI Land (This is the most-often requested game that no longer exists for TI.), there is presently no cribbage game available anywhere. If anyone has a cribbage game please let me know where it can be had. However, Corey Cheng (of TI music fame) has written a cribbage game which is superb but incredibly slow. I had a chance to beta-test it a while ago, and it was excellent. He says he's redoing it for greater speed and is working on the directions. Whenever this busy genius (artist, mathematician, violinist, student, computerist) completes the project, I will announce it in this column.

If any reader has a question you think could be answered within this column (or an answer to questions) please write: Jack Sughrue, Box 459, E.Douglas, MA 01516.

ZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ

SLEEPER OF THE YEAR AWARD

In the world of computer game playing it is easy to become very jaded very quickly.

When we all had tape recorders we loved playing GUESS THE NUMBER against the TI. I think that was the first program we all typed in from the manual. Then we moved to THE THING THAT BEEPS WHEN YOU TOUCH IT game. Later, the space games. Along the way there were word games and Tower of Hanoi games and the scrolling navigational games. Most of these - with the exception of Regena's - you wouldn't even want to go back to try out.

There were some good ones, though, that are still good, if you can make a speeded up version: 3D TIC TAC TOE, is an example.

I still think HAMMURABI and JOTTO and SQUARE PAIRS and ROMEO and CAVERN QUEST are still superb game programs (as obviously are the adventure types discussed earlier).

I like games. I claim I'm always on the lookout for good games for my kids and for my 5th-grade students. In truth, I like games.

So what does a jaded game player who has become intrigued by the construction games (like GRAVITY MASTER and SPACE STATION PHETA) do when the computer chores are done?

I put on my favorite: DIABLO. It is intellectual fare with an arcade atmosphere and was given to me for my birthday about five years ago.

Nothing else is like it for the TI or for any other computers.

You try to thwart a slowly rolling ball that is out to make you look like an idiot. Sounds odd? It is, as I've said, unique, and you have to experience it to appreciate it.

Now along comes another another unique game. This one is by Tom Wible and is put out by ASGARD (PO Box 10306, Rockville, MD 20850) for only $14.95 on disk. It is called HIGH GRAVITY.

The premise is that you are in a space ship and are unable to get through the planetary system safely to save a stranded crew. The system could contain up to 9 planets of varying sizes. You may control the size, number, and location of the planets, if you like. Become a minor god and even save the system for later use (if you're into immortality). When I first read the manual which comes with HIGH GRAVITY (which is clear and non-technical), I was impressed. Then I loaded the thing and was instantly unimpressed. I'm used to "speed of lightning" attacks. And groovy sound effects. And flashy explosions.

None of that stuff here. And some of the configurations the computer gave me were so simple I did them with my feet tied together. But then the insidiousness of Wible began to descend upon me.

I've been hooked since.

The simplicity is deceptive like the simplicity of DIABLO, as both are ingeniously-disguised lessons in physics. (I shouldn't have said that. I can see the crowds running out the door from here.) It's sophisticated to the point where you can actually use real physical laws of gravity to create computer art with the leave-a-trail aspect of the game. Is it a game? Is DIABLO a game? Is life a game?

I only know that since I got HIGH GRAVITY about six months ago, I have been dividing my recreational computer activities about evenly between these two great g... - er, shall we say - er, between these two great stimulating computer activities.

MEMORY ON - MEMORY OFF

Here are a couple of CALL LOADS that you might find interesting to have a play with.

```
CALL LOAD(-31868,0,0)
```

This first CALL LOAD will turn off the memory expansion.

```
CALL LOAD(-31868,255,231)
```

This CALL LOAD will turn the memory expansion back on again.

THE ROOSTER

32K RAM INTERNAL EXPANSION BOARD

VARIATIONS ON A THEME

by

FRED SHELLEY

References:
HV99ers Newsletters #6,#7 & July 86
ETI Project 687 (July 86)
Any other 32K expansion projects that have ever been published.

Grateful thanks to Gary Jones and Al Lawrence for valuable assistance.

On the assumption you have read all the above literature, and more importantly, understand the usual disclaimer issued before attempting any project, go for it! It really isn't so difficult. But I must point out that because this is a variation, and not a "fresh" from the drawing board design, these notes should be read in conjunction with the above references to avoid confusion.

First some background information. I wanted a 32K expansion for a stand alone console and had been assured "it was the way to go". "However we have exhausted our supply of 32K boards, why don't you try this method?" Fair enough! "Anybody else tried it yet?" "Sure, chap in Sydney said it should work ok!"

So I priced and bought the PC board from RCS Radio of 651 Forest Rd.Bexley 2207 (under $10.00 at the time). After obtaining the remainder of the necessary components, construction took place.

The board assembly is not difficult so long as you know the hot end from the cold end of a small soldering iron. I used chip sockets to assist in fault finding should it prove necessary.
Because this pc board was originally designed for a VZ200 some changes are called for.

These changes are:
IC1 is U504 on the main board,
IC2 is not necessary.
De-coupling capacitors C1-C6 are replaced by a 22uF Tantalum capacitor.

This means you can either shorten the length of the board or use the pin holes for the wire terminations. I chose the latter as there is plenty of room "under the hood".

Start by soldering in the links as shown. Then the chip sockets and capacitor.

Next, it is a good idea to fit a plug & socket in the ribbon cable to facilitate removal should it ever be necessary. An insulation displacement type will save the hassle of remembering the terminal numbers but of course is more expensive. Suit yourself. Cut the ribbon cable to allow about 8 or 10 cm at one end for connecting to the 32K pc board.

Close inspection of the pc board will reveal that most of the ribbon cable terminations can be made in the unused IC2 socket holes. The remainder can be soldered in to the IC1 socket holes and use links where necessary. With all your connections double checked for correctness press on with the connections to the main board and GROM extension board.

Take time to do neat joints and identify the correct pins, it's worth the extra effort.

For convenience in wiring there are extra columns in Table A to make note of wire numbers.

Now that all is complete, it only remains to test the board and secure it in place. Double sided adhesive strip is quite adequate.

Re-assemble the console and enjoy the luxury of another 32K of RAM.

If after reading all the articles you are still intent on making the 32K but unsure on some points,please feel free to get in touch. I will be only too pleased to assist.

Good Luck and happy constructing

TABLE-A.

WIRE NAME AND FUNCTION TI's BUS	PIN NOs. ON REAR OF THE GROM EXTENDER	PIN No. ON RAM CHIP SOCKETS	WIRE NAME ON HITACHI RAM CHIP
+5 VOLT	19	28, 26, 1	Vcc, CS2, NC
+ EARTH	2	14	GND
WE WRITE ENABLE	32	27	$\overline{WE}$
A3	34	2	A12
A4	30	23	A11
A5	28	21	A10
A6	26	24	A9
A7	22	25	A8
A8	20	3	A7
A9	18	4	A6
A10	16	5	A5
A11	14	6	A4
A12	12	7	A3
A13	10	8	A2
A14	23	9	A1
A15	8	10	AØ
DØ	17	11	I/O1
D1	15	12	I/O2
D2	13	13	I/O3
D3	11	15	I/O4
D4	9	16	I/O5
D5	7	17	I/O6
D6	5	18	I/O7
D7	3	19	I/O8

16 WIRES OF THE ADDRESS BUS

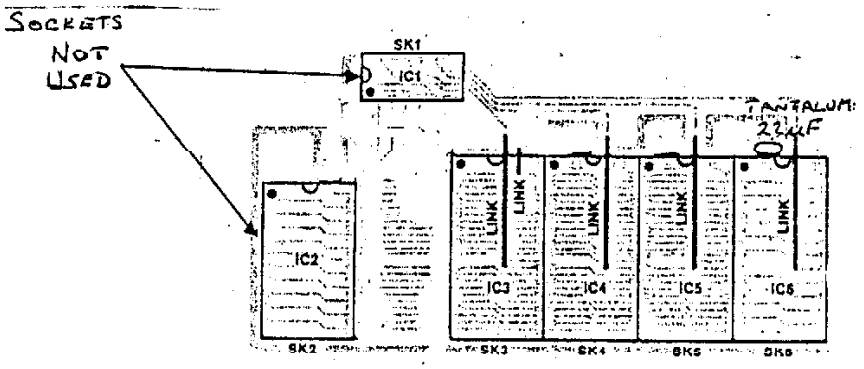
8 WIRES OF THE DATA BUS

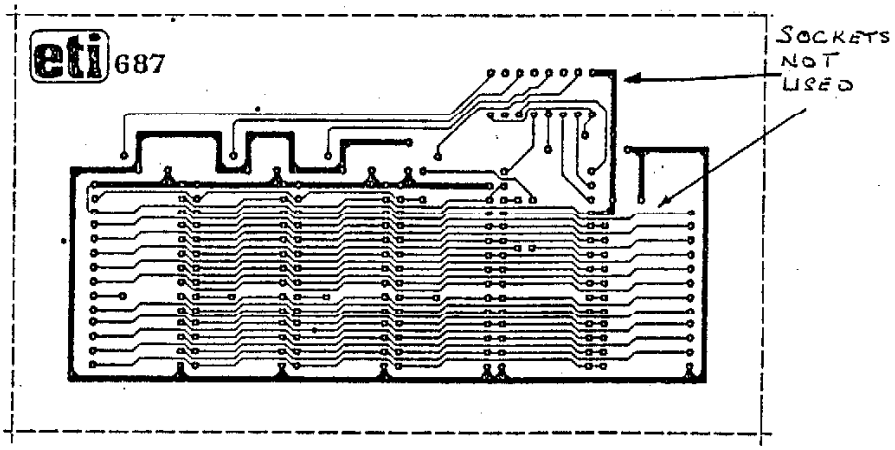
TABLE - B.

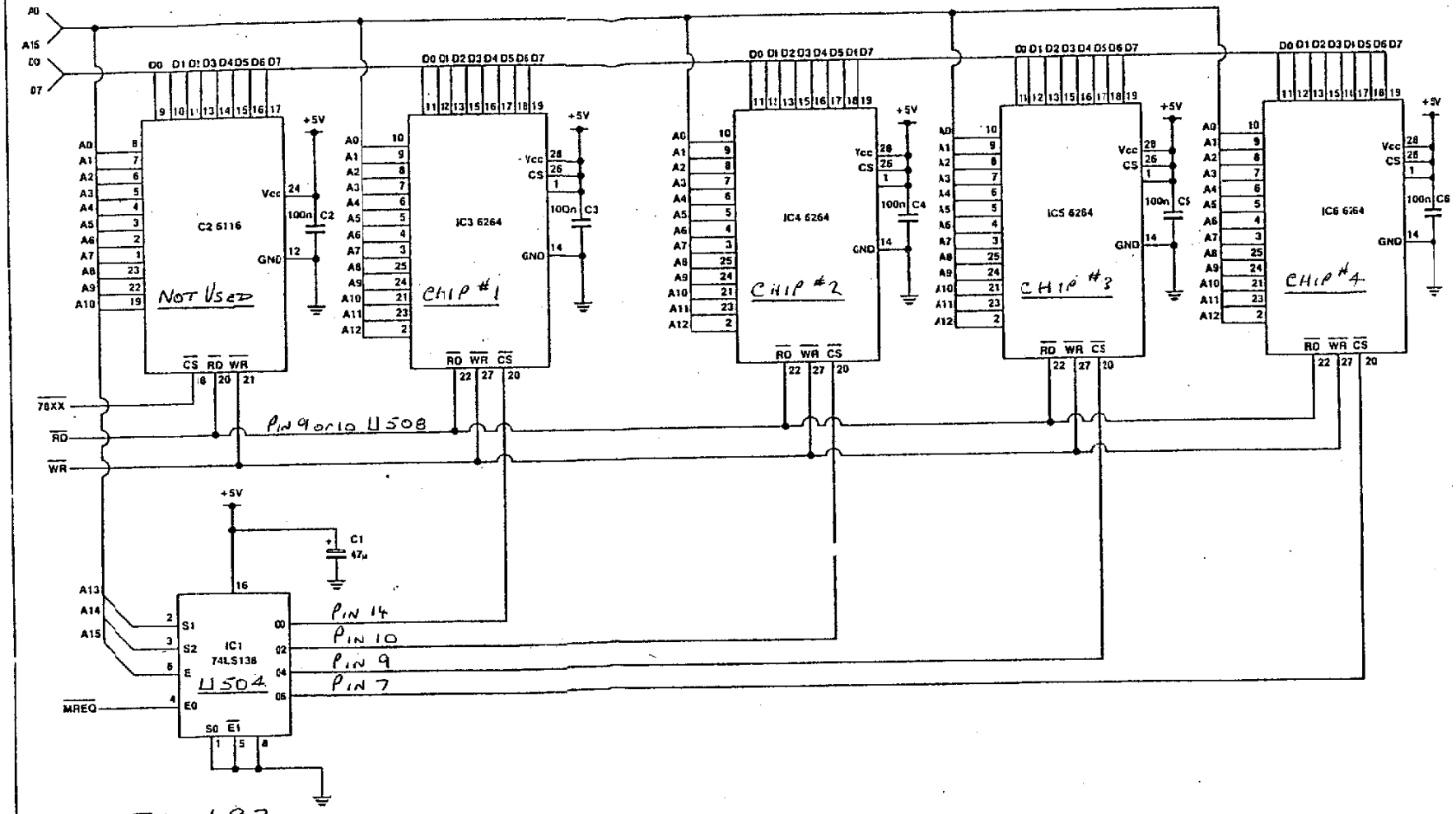
WIRE NAME + FUNCTION	FROM CONSOLE CHIP NUMBER & PIN No.	TO RAM CHIP No. & PIN No.	WIRE NAME ON HITACHI RAM CHIP
$\overline{DBIN}$ DATA BUS IN	U508 / 9 M10	22 ON ALL.	$\overline{OE}$
LOWMEM	U504 / 14	20 ON CHIP 1	$\overline{CS1}$
HIMEMAB	U504 / 10	20 ON CHIP 2	$\overline{CS1}$
HIMEMCD	U504/9	20 ON CHIP 3	$\overline{CS1}$
HIMEMEF	U504/7.	20 ON CHIP 4	$\overline{CS1}$

NOTE

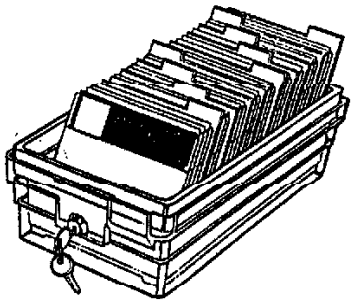
1) Pin No. 1 on RAM chips not used (connect to +5V)
2) Pins 1,4,6,21,25,27,29,31,33 to 36 on GROM extender not used here.
3) Texas Instruments number their Bus lines in reverse order to most other manufacturers!
4) DBIN is available on GROM pin 25 but would need to be inverted to get DBIN.






A0
A15
D0
D7
D0 D1 D2 D3 D4 D5 D6 D7
+5V
C2 6116
NOT USED
IC3 6264
CHIP #1
IC4 6264
CHIP #2
IC5 6264
CHIP #3
IC6 6264
CHIP #4
Vcc
GND
CS
100n C2
100n C3
100n C4
100n C5
100n C6
RD WR CS
78XX
RD
WR
PIN 9 or 10 U508
C1
47µ
IC1
74LS138
U504
S1
S2
E
E0
S0 E1
O0
O2
O4
O5
A13
A14
A15
MREQ
PIN 14
PIN 10
PIN 9
PIN 7

ET1-687



SOFTWARE LIBRARIANS NEWS

from
ALAN FRANKS

As I have had a few requests for a price list on club software the prices are as follows.
SSDD Blank Disks are $12 for a pkt of 10 We have found these disk are also quite suitable to use DSDD with a 100% success rate so far.

Cassettes are $3 with assorted programs or made up on request.

Single Disks of software are $3 or $1 copy fee if you supply the disk.

Funnelweb Version 4.0 is available on two single sided disks for $5 or one double sided disk for $4 and is now on three single sided disks for $7 for those with 35 track drives.

We now sell cardboard disk mailers that hold up to five disks and besides being quite sturdy are reuseable and are only sixty cents.

Also we have been receiving some favourable replies from our software mailout to our out of town members who are unable to get to our meetings to see the software demonstrated or pick there own.
Five disks of assorted software was posted out with the option to keep them and send back $12 or return them ,the same offer is available to any member who wishes to be involved in it by contacting me or any other member of the committee. Members who have managed to acquire the mini PE box and invested in the Burroughs box with the two 35 track drives are after an initial period of complete confusion starting to get on the right track. Finally I would like to say thanks to Kevin Cox in Coffs Harbour for helping me to acquire the TE11 module ,and all the best for xmas and the new year to everyone.

- FOR SALE -

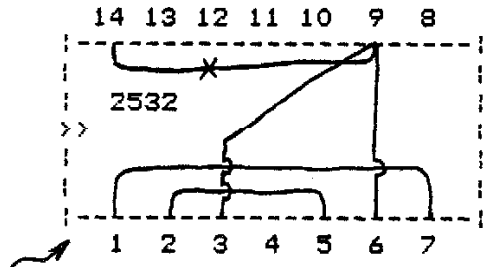
1 Peter Schubert-type MODEM
300 Baud
Little Used
$75
Contact:
Ron Pratt
049-921518

```
**********************************
*                                *
*                                *
* ------------------------------ *
* 1988  FORTH  OFFER             *
* ------------------------------ *
*                                *
*                                *
* FORTH CLASSES WILL BE HELD FOR *
* INTERESTED PARTIES ON ELEMENTRY*
* PRINCIPLES OF TI-FORTH IF THERE*
* IS A DEMAND FOR THIS SERVICE.  *
*                                *
* PLEASE CONTACT RICHARD TERRY BY*
* THE BEGINNING OF FEBRUARY AT   *
* THE ADDRESS AT THE END OF THE  *
* FORTH ARTICLE IN THIS MAGAZINE.*
*                                *
**********************************
```

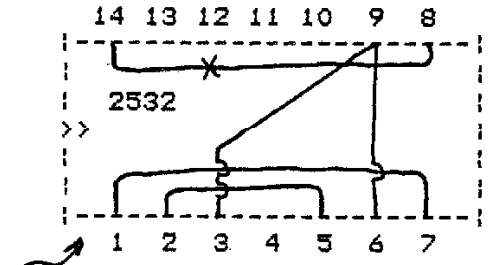
OOPS

This OOPS!! has come to the attention of Ron Kleinschafer, the author of an article on the EPROM PROGRAMMER which appeared in the AUGUST '87 issue of the HV99 newsletter.

The wiring of the SET-UP Plug for the 2532 EPROM is incorrect. The wire which in the original drawing goes from PIN 14 to PIN 9 should instead go from PIN 14 to PIN 8 as in the accompanying drawing.



INCORRECT DRAWING -(top view)



CORRECT DRAWING -(top view)

We'll let Ron off with this one seeing how as he found it anyway!!
Thanks Ron....

SHELL METZNER SORT

BY
THE ROOSTER

When programming in a high level language such as Basic or even extended Basic time is a critical consideration. When the computer is asked to do many operations as in Sorting routine these time deficiencies become very obvious. To overcome this to some extent one needs to use the most time efficient code one can find. Below is the quickest sort routine I have used to date for list of greater than 50 items.

```
90  REM LIST LENGTH
100 CT=100
110 CT=INT(CT/2)
120 IF CT=0 THEN 260
140 K=100-CT
150 J=1
160 I=J
170 L=I+CT
180 IF S(I)<=S(L) THEN 240
190 TEMP=S(I)
200 S(I)=S(L)
210 S(L)=TEMP
220 I=I-CT
230 IF I>1 THEN 170
240 J=J+1
250 IF J<=K THEN 160 ELSE 110
260 PRINT "SORT COMPLETED"
```

The above programme requires a DIMENSION array to be defined. S(100). The line numbers can be changed to fit the sort into your own programme. Just remember to also alter the line numbers after each of the THEN statements and the ELSE statement.

For short sort lists a Bubble sort is almost as quick as this sort. For long lists this will leave the Bubble standing, assuming that the list has not been previuosly sorted. As yet will know Bubble will rattle through a sorted or almost sorted list of any length fairly quickly.

RE-SETTING THE CPU

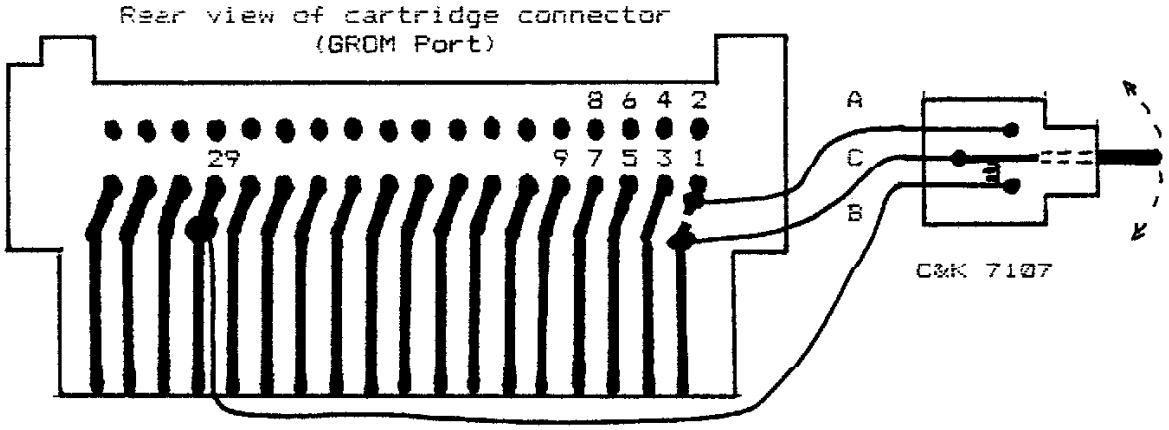
A HARDWARE MODIFICATION

re-written by Paul Hulvaney

Original article written by John F Willforth from the West Penn 99's Club, Jeaneatte, PA.

This console modification allows a reset of the CPU without powering down, a handy feature for getting out of a crashed program or a program with a disabled QUIT key. It also allows a module to be changed without reset, handy for cartridge dumps, and in the normal position everything is back to normal.

To do the mod you will need a three position switch with a spring return to centre on one side and stay in position on the other. A C&K 7107 is suitable and available from electronic stores.

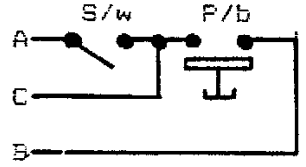


Looking at the back of the GROM Port cut the track coming from the number one pin of the module and solder the wire from the centre of the switch just below the cut. The wire from the stay put side of the switch goes to the other side of the cut track. This allows the 'normal' operation by joining the track together by means of the switch.(C-A). When switched to the centre position the track is opened up and prevents resetting of the CPU when a module is inserted. (As shown above). The third wire is soldered onto the track from pin 29. This is the spring reset position and provides a reset signal to the CPU.(C-B).

Take care when cutting the track that the cut is above the connector socket that the GROM Port plugs into. When cutting the track use a sharp knife to cut the track then apply a hot soldering iron to the section to be removed. The heat will lift the track off. When soldering the wires on only apply the heat for a short time to prevent the tracks from lifting.

The suggested switch fits on most consoles in the space beside the = key. We had some trouble with two consoles that had a metal frame around the keyboard, it interferred with the switch and we had to relocate the switch to the side of the console.

If the suggested switch is unavailable a substitute can be made from a switch and a pushbutton as shown below.



Thanks to John Willforth for a simple but very useful modification.

THE INFORMATION PAGE

IN YOUR NEWSLETTER THIS MONTH

In the News - a round-up of TI happenings	A. Wright
Helicopter - a Mini Mem program	K. Cox
Random Bytes	B. Carmany
How Fast are TI Commands?	Rastis
Radio Teletype and the TI	G. Wilson +
Digressions from Chaos Manor	R. Klienschafer
Adventurers Corner	R. Gainsford
Graphics and Funnelweb	B. Rutherford
Funnelweb V4.Ø - how to configure etc	A. Lawrence
Program Descriptions	Shoals U.G.
FORTH	R. Terry
Impact 99	J. Sughrue
32K Internal Expansion Board	F. Shelley
Re-Setting the CPU	P. Mulvaney +

PLUS MUCH MUCH MORE!!!!!

COMING EVENTS

Next Committee Meeting: Tuesday 2nd February, 1988
Next General Meeting: Tuesday 9th February, 1988

AGENDA FOR FEBRUARY MEETING

Demo of Joe Wright's Genealogy Program

CLASSES AVAILABLE FOR MEMBERS

are in recess till n t year

ANNUAL SUBSCRIPTIONS

Subscriptions to the Group cover the period 1 July to 3Ø June following year. Membership enquiries are welcome; please address all enquiries to the Secretary.
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